The Chemical Age

A Weekly Journal Devoted to Industrial and Engineering Chemistry

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NOTICES:—All communications relating to editorial matter should be addressed to the Editor, who will be pleased to consider articles or contributions dealing with modern chemical developments or suggestions bearing upon the advancement of the chemical industry in this country. Communications relating to advertisements or general matters should be addressed to the Manager.

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THE CHEMICAL AGE INDEX.

The index to THE CHEMICAL AGE *for the half-year January to June, 1926, Vol. XIV, will be published in our next issue.*

"I. G. Dyestuffs, Ltd."

THE announcement made in THE CHEMICAL AGE some weeks ago that the German I.G. had decided to form a British company, with headquarters in Manchester, for the sale and distribution of their dyestuffs and other products, is now officially confirmed. The new company, which is named "I.G. Dyestuffs, Ltd.," commenced business from July 1 as distributors in Great Britain of the dyestuffs and auxiliary products, etc., manufactured by the I. G. Farbenindustrie Aktiengesellschaft Frankfurt a/Main. In their official circular they state:

We have pleasure in notifying you that we have secured the services of many of the gentlemen prominently connected with the sale of I. G. dyestuffs, etc., in this country, together with members of their experienced staffs.

This new company has been formed largely with the idea of improving the services which can be rendered to dye-users. In view of the intimate connection between our company and our manufacturers, we feel sure that we can promise the highest degree of efficiency in all commercial and technical matters.

We trust that we can count upon an extension to the new company of the friendly relations which have subsisted between the dye-users and the firms hitherto supplying I. G. products, and we can assure you that we on our part will do all that we can to merit the confidence of those whom we hope to number among our customers.

In connection with this circular the Bradford firm of Singer & à Brassard announce that they have accepted an invitation to join the Board of the I.G. Dyestuffs, Ltd., and that consequently their firm will be liquidated as from July 1. All liabilities up to June 30 will be paid by Singer & à Brassard, and all accounts due to the firm should be made payable to Singer & à Brassard, c/o the I. G. Dyestuffs, Ltd., 46, Vicar Lane, Bradford. The registered office of the new company is at Cromford House, Cromford Court, Manchester, and branch agencies have been opened at 46, Vicar Lane, Bradford; at Thames House, Queen Street Place, London; and at Glasgow, though the address is not disclosed.

The directorate of the new company is a matter of considerable interest. It consists of nine members, the majority of whom, as the circular states, are already well known for their connection with the importation of German dyestuffs and chemicals. The direct representative of the I. G. on the board is Dr. R. Phillipi, who, it is understood, has been responsible for making the necessary arrangements for the formation of the company in this country, and with him is Mr. E. Selck. Both are described as of German nationality. Mr. A. Singer, described as "British of Austrian origin," is connected with the Bradford firm already mentioned, and has acted as the Yorkshire representative of the Cassella Co. The remaining six directors are Mr. F. E. Craven (Yorkshire representative of the Bayer Co.); Mr. A. Edge (German Agfa and R. W. Greeff and Co.); Mr. A. H. George (Manchester representative of the Badische Co.); Mr. A. M. de Greeff (a director of R. W. Greeff and Co., London); Mr. W. J. Holland (Yorkshire representative of Meister, Lucius, and Brüning); and Mr. F. Taylor (Manchester representative of the Bayer Co.).

As we pointed out in making the original announcement, the formation of a British company will in no degree affect the operation of the Dyestuffs Act, and the company will only be able to import such dyestuffs as the Board of Trade licensing committee authorises them to import under license. So far as manufacture or importation is concerned, it will have no effect on British dyestuffs production. It is intended clearly—and the qualifications of the directors emphasise the point—to improve sales and distribution of German dyestuffs in this country, and to consolidate that side of the German organisation. The user of German dyestuffs may thus be served by more convenient machinery, more immediately directed by and linked up with the headquarters at Frankfurt. The user will have possibly a better service, but it would be interesting to have the frank opinion on this point of those who have held German agencies in the past and whose services have apparently been discontinued. These, like the smaller class of importer, will no longer be able to deal directly with the German headquarters,

but will have to obtain their supplies through the recognised agencies of the British company, and to sell probably under fixed price arrangements and other conditions. Some of the larger British chemical and dyestuffs concerns similarly control their own sales and distribution organisation. The effect is obviously to restrict the field of the free-lance trader, and the latter will hardly welcome the present extension of control over imported products of the I. G. This, however, is a matter to be settled among chemical and dyestuffs traders themselves, and perhaps some statement on the subject may be made by the official organisation.

Bouverie House Service

In connection with the opening of Bouverie House, Fleet Street, the new and imposing headquarters of Benn Brothers, Ltd., and their associated companies, there will be some important developments in the "service," which The Chemical Age, one of the firm's journals, has sought with some success to give in the past. It is intended that Bouverie House shall partake of the nature of a club, to which subscribers, advertisers, and clients generally will have the privilege of honorary membership. On Thursday, July 1, our spacious reception room, rivalling in furnishing and decorative effect those of the best London clubs, was opened. This room will not be used as the firm's offices; it will be at the service of our friends as a convenient meeting place, where inquirers and visitors may obtain any assistance they require from time to time.

For example, clients of The Chemical Age are invited to make their appointments at Bouverie House, where every convenience will be found for conferring with their friends in comfort, and where telephones and correspondence facilities will be entirely at their disposal. Letters may be addressed to subscribers, in our care, to await their arrival, and will be handed to them upon calling at Bouverie House. Telephone messages may be sent through, and will be preserved in the same way until our subscriber visits us. Subscribers to The Chemical Age already make liberal use of our organisation for the supply of information. A good proportion of our daily post consists of requests for assistance of this kind. In addition to the present service by post and telephone, Bouverie House will give, to those who care to take advantage of it, the opportunity of discussing such matters personally at interviews and of taking direct advantage of our Inquiry Department, with its research staff. There will also be on the premises a Staff Restaurant, to which visitors may be introduced.

A notable feature of the new Chemical Age office will be its reception of callers. London is not distinguished for the hearty welcome which its offices accord to the caller from a distance. We propose, copying an American idea, to do what is possible to make the caller feel that he is welcome. On entering the new offices the caller will find inside the door a senior member of the staff, who will be waiting to make sure that the caller's business is properly understood, and that his desires and wishes are complied with, so far as that is humanly possible. On the reception desk the caller will find a card displayed giving him the name of the reception official on duty, and thus the interview will start without loss of time. Callers at our offices will not be placed under any obligation on account of information given, courtesy shown, or help rendered. Our revenues are of two kinds only: first, the charges made to our subscribers and readers for the supply of the journal, and second, the charges made to advertisers for the use of advertising space. We have no other sources of revenue, nor do we desire any; and those who, being subscribers or advertisers, make use of us in the many new ways in which we hope to serve them, do not thereby place themselves under any sort of new obligation.

During the week beginning on July 12 there will be a series of daily receptions in connection with the firm's various journals and publications. The reception on Friday, July 16, will be for clients of The Chemical Age. From four to six o'clock guests will be received by Sir Ernest Benn, chairman of the company, and there will be tea and music. A large number of invitations have been issued, and if any friend has been inadvertently overlooked, the omission will be readily rectified on receipt of an intimation.

Benzol Research Committee's Report

The third report of the Joint Benzol Research Committee, which has just been published, preserves the high standard of its predecessors and contains the results of important research work which should be particularly valuable to all associated with the recovery of benzol from coal and coke-oven gases and its subsequent rectification. In the main, the experimental work undertaken during the period to which the report relates was confined to the more apparent problems that are met with in modern works processes, such as the relative suitability of various adsorbents, the formation of resins and gummy deposits, and the standardisation of colour. It will be recollected that the use of active carbon and silica gel as adsorbents for benzol from gases was the subject of previous investigations by the research staff of the Committee. Although in this country there has not yet been any marked tendency to utilise solid in lieu of the customary liquid adsorbents, it is of direct technical value to determine the efficiency of the former and to examine the claims which have been made for them. To this end, attention has been directed to a third solid adsorbent, namely ferric oxide gel, which has suggested itself as suitable for the recovery of benzol, but about which very little is known from the practical scale point of view. In other words, no data have previously been published in connection with this substance on the adsorption of benzene under benzol recovery conditions.

The results obtained are of importance as indicating that ferric oxide gel has a fairly high adsorptive capacity for benzene admixed with air when the concentration of the benzene approaches saturation. Thus the quantity of benzene adsorbed by ferric oxide gel from air saturated at 15° C. (when calculated on the volume occupied by the adsorbent) was actually greater than was the case with active carbon or silica

gel. With a decrease in concentration, however, the adsorptive capacity of the oxide gel falls off more rapidly than is the case with the alternative substances, so that under benzol recovery conditions the quantity of benzene adsorbed is less than that with either carbon or silica gel.

An equally important consideration in connection with substances to be used for such purposes is the influence of water vapour on the adsorption of benzene. In the case of oxide gel it was found that both benzene and water vapour were removed from the air stream until the gel had taken up about 3 per cent. by weight of benzene and 1·7 per cent. of water, after which the benzene vapour began to pass through and the efficiency of removal fell off rapidly. This result, as, perhaps, might be expected, agrees closely with the figure previously obtained for silica gel. An examination of the results of experiments which are quoted in detail in the report indicates that the samples of ferric oxide gel made use of were inferior to both active carbon and silica gel, but though further work in connection with the oxide gel as a benzol adsorbent scarcely seems justified, it is proposed to examine its capacity as an adsorbent for sulphur compounds. Here, it will be appreciated, is an opportunity for applying the gel to the removal of sulphur impurities from benzol either in the liquid or vapour phase, but as yet it is not definitely determined whether it has sufficient selectivity for this purpose.

Cresol and Tetralin as Absorbents

In view of the importance of extending the process of "stripping" in order to augment the available supplies of benzol in this country, it is rather surprising that a greater amount of attention has not been given to alternatives in the way of wash oils. The principal wash oil now made use of is, of course, creosote, although a number of the gas undertakings now utilise an ordinary water gas carburetting oil, owing to its favourable effect on the naphthalene content of the gas. In recent years attempts have certainly been made to discover other wash oils which do not suffer from disadvantages such as thickening and low adsorptive capacity, and probably the most interesting examples are afforded by cresol and tetralin. Since the war cresol has been used in France and America for benzol recovery, and a number of claims have been made as to its superiority over other wash oils. Tetralin, again, has more recently been claimed to be an even better adsorbent than cresol, and the tetralin process is being tried out both in France and Germany, but considerable differences of opinion exist as to the suitability of either of these substances for "stripping" purposes. The primary object of the investigations which the Committee has carried out was, therefore, to clear up the contradictory situation which has arisen, to check the results which have been published, and to satisfy itself whether further work in connection with these suggested adsorbents is desirable. A review of the experiments given in the report does not, however, appear to indicate any great superiority (particularly of tetralin) from the point of view of speed of absorption as compared with the more commonly used oils, but attention is drawn to the fact that the work carried out cannot necessarily be considered as conclusive owing to the impossibility of producing in the laboratory the conditions which prevail on a working scale.

Society Finance

Though, unfortunately, the balance sheet of the Society of Chemical Industry for the year ended December 31 shows a rather larger debit balance than that for the previous year—£1,274 11s. 3d. against £725 15s. 4d.—there are two thoroughly satisfactory features in the report. The first is the fact that, though costs have obviously been very carefully considered, the expenditure on essential services has been maintained, and in some cases, indeed, increased. This is a policy that requires some faith, but in the long run usually justifies itself. The second good point is the increase in the amount of members' annual subscriptions, indicating an increase of membership. The increase, it is true, is not great, but it marks, let us hope, a turning point. For some time past the membership has shown a slight but unpleasantly persistent decline. That has been stopped and an upward movement started. This change in the membership curve is one of several things for which Mr. Woolcock's presidency will be remembered, and the best appreciation of it will be to see that the improvement is maintained.

Books Received

Coal and Ash Handling Plant. By John D. Troup. London: Chapman and Hall, Ltd. Pp. 148. 13s. 6d.

Cement, Concrete and Bricks. By Alfred B. Searle. London: Constable and Co., Ltd. Pp. 441. 24s.

Chemistry Revision Notes for a First Examination. By Doris Dixon. London: Edward Arnold and Co. Pp. 138. 3s. 6d.

The Calendar

July 5	Royal Institution: General Meeting. 5 p.m.	21, Albemarle Street, London, W.1.
19	Institution of Chemical Engineers: Fourth Annual Corporate Meeting.	Committee Room D, Central Hall, Westminster, London.
19	Institution of Chemical Engineers: Annual Dinner. 6.30 p.m.	Empire Room, Hotel Great Central, London.
19–23	Society of Chemical Industry. Annual meeting.	London.
19–24	British Chemical Plant Exhibition. 10 a.m. to 8 p.m. daily.	Central Hall, Westminster, London.
20	British Chemical Plant Manufacturers' Association: Annual Meeting. 2.30 p.m.	166, Piccadilly, London, W.1.
	Annual Dinner. 6.30 p.m.	Hotel Great Central, London.
Aug. 4–11	British Association for the Advancement of Science. Annual meeting.	Oxford.
Sept 20–24	Chemists' Exhibition.	St. Andrew's Hall, Glasgow.

Alkali Works in Scotland

Inspector's Report for the Year 1925

We give below some extracts from the report for the year 1925 on Alkali Works in Scotland, presented by Mr. J. W. Young to the Scottish Board of Health. This report has been published as part of the sixty-second Annual Report on Alkali Works by the Chief Inspectors for England and Wales and for Scotland (H.M. Stationery Office, pp. 31, 1s.).

THE number of works registered was 150, in which were operated 288 scheduled processes as follows: 6 alkali (saltcake), 1 alkali (wet copper), 2 smelting, 18 sulphuric acid, 11 sulphuric acid (Class II.), 20 chemical manure, 13 gas liquor, 7 nitric acid, 103 sulphate and muriate of ammonia, 3 chlorine, 2 muriatic acid, 13 sulphide, 1 alkali waste, 10 lead deposit, 1 arsenic, 6 nitrate and chloride of iron, 1 carbon bisulphide, 3 paraffin oil, 7 bisulphite, 59 tar, and 1 zinc extraction.

I made 482 visits to these works, and 181 to others not on the register: in the course of my duties I performed 272 chemical tests of escaping gases: in no case were exceeded the limits of acidity prescribed by the Act. No legal proceedings have been taken.

Complaints against works registered, and against others not registered were received and investigated. In some cases a complete remedy has been found and adopted with good results; in some the remedy has brought only partial success; in some to devise a remedy, even after numerous efforts, is still under consideration. Any failure has been due to inherent difficulties and to no lack of skill and zeal in owners and their assistants.

The hopeful anticipation of last year's report regarding retention of cement dust by the Glasgow Iron and Steel Co. at Wishaw has been fulfilled abundantly.

Life was lost, again unnecessarily, at a sulphuric acid works. Disregarding orders, a plumber entered an idle Guy-Lassac tower, on the repair of which he was engaged. He wore no respirator; probably he would have said that he was accustomed to "gas" and knew all about it. He finished his work at the end of the day, walked home, became ill soon after, and died of acute pneumonia in a few hours. Oxygen was liberally administered. It is doubtful whether in such cases this revivifier should be used; the condition of the patient differs greatly when suffering from the common narcotic poisons such as carbon monoxide and sulphuretted hydrogen. Reacting with oxides of nitrogen, the poisonous gases of a Guy-Lassac tower, to form nitric acid, oxygen tends to increase their corrosive power.

The tower entered by this man had been idle during several weeks, and also had been copiously washed. More than this is required to ensure safety. A tower under repair should be absolutely disconnected from other plant still working. To guard life no movable damper is trustworthy. In addition, cautious people reverse draught through the tower, so that fresh air is drawn downwards from above.

It was mentioned that the man wore no respirator. They are disliked. The efficient helmet with air supply is sometimes cumbrous. A respirator charged with chemical compounds chosen to absorb one poisonous gas may be useless against another gas and lead to danger through a false sense of security. Many instances have been noted of this error.

By the courtesy of manufacturers, I am able to present the usual summary of raw materials and of products.

Pyrites, Blende, and Spent oxide burned for Sulphuric Acid:—

	Tons.
In 1925	108,805
In 1924	109,049

Phosphates and Bones dissolved for fertilisers:—

	Tons.
In 1925	59,279
In 1924	56,515

	Salts of Ammonia. Tons.	Tar distilled. Tons.	Pitch produced. Tons.
From gasworks	22,134	144,993	34,468
,, iron works	2,518	24,359	12,866
,, coke ovens	5,835	12,940	4,073
,, producer gas	4,019	6,535	2,858
,, shale works	44,400	—	—
Total 1925	78,905	188,827	54,265
In 1924	91,228	218,725	77,885

The ammonia is expressed as pure sulphate; 1,258 tons were obtained as concentrated liquor ammonia, and 512 tons as ammonium chloride.

Alkali Works

Less salt was decomposed, both for production of hydrochloric acid and for the wet recovery of copper. The prevailing quietness in other trades diminished demand for the one process and provided less raw material for the other. Plant was maintained in good order at all the alkali works. The general average amount of hydrochloric acid discharged into the air was in each cubic foot of chimney gases 0·04 grain, the highest and lowest averages for any one work being 0·08 and 0·02 respectively.

Sulphuric Acid and Sulphuric Acid (Class II) Works

There is no change to report in this important industry, which languishes, awaiting the general revival of trade. Diminished output increases cost of manufacture, and the high price to the consumer lessens demand. The customary periods of idleness for repairs have been longer than usual, and full advantage has been taken to rebuild chambers and to repack towers. Lead is more rapidly consumed by the present intensive working, so that larger amounts of lead sulphate have been collected and sold on favourable terms. It has been observed that deterioration often now occurs most severely in chambers later than the first.

Water flushing of the second Guy-Lassac tower of Messrs. Miller and Co.'s plant has continued in action. It is enough to write that the average of my tests of the exit gases throughout the year is *nothing*, or, in other words, that all acid was retained in the plant, so that none of the 4 grains allowed in each cubic foot of the exit gases escaped into the air.

Attempts elsewhere in this country to employ Messrs. Miller's plan have failed through disregard of essential conditions, but in Cleveland, U.S.A., their results have been surpassed in one particular. At Aberdeen no saving was claimed in consumption of nitre, but in Cleveland Mr. R. D. McClaurin, working on a scale much larger, has increased his recovery of nitre by the substitution of water for strong acid as the flushing agent. The American plant has the advantage of pure sulphur for its raw material instead of iron pyrites. This variation scarcely suffices to explain increased success. Mr. McClaurin suggests as the cause, the fact that in his chambers concentration of nitre is 4 times as great as in Messrs. Miller's; so that each is not comparable with the other, but only with its own previous record.

The general average acidity in each cubic foot of residual gases discharged by all sulphuric acid works was 0·54 grain of sulphuric anhydride; the highest and lowest averages for any one work were 0·94 and nil respectively.

The use of the stronger acid supplied by the Class II. process has been steady. Plant has been maintained throughout in high efficiency, and condensation has been good of the acid gases.

For ordinary concentrated acid there has been less demand. No new design of plant has been introduced in new units, nor in rebuilding old. Some annoyance was caused by fumes evolved from an under-fired leaden pan passing over a wall into a public street. The acidity of the fumes was small, so that a careful arrangement of screens to divert the air currents provided a complete remedy.

The general average acidity of the final gases from Class II. works was 0·38 grain of sulphuric anhydride.

Chemical Manure Works

Conditions were of much the same character as in recent years—a diminished manufacture and increasing competition; the smaller firms, instead of acting as producers, becoming merely dealers in the products of others. Great care has been taken in regulating the efficiency of plant and the control of operations. At the works best fitted condensation of corrosive gases was complete, and at others over 90 per cent. was retained. The general average of the total acid in each cubic

foot of gases escaping finally was 0·08 grain, expressed as the SO_3 equivalent of silico-fluoric acid; and the percentage condensation varied between 97·1 and 100.

Sulphate and Muriate of Ammonia and Gas Liquor Works

The yield of ammonia from gasworks was slightly greater, but from all other sources less. Quality continues to improve. It was necessary at one works to ask for reorganisation throughout of the sulphate of ammonia plant, which for long had been defective in many points. Immediate attention was given to my request, and a most satisfactory plant is now in use. At two other works there has been similar reorganisation spontaneously.

It is noted that the centrifugal driers for extracting mother liquor are often too small, and also how quickly their metallic lining, usually of copper, perishes. In one case this lining is of jute canvas; its cost is small, it is flexible, and easily replaced after a short existence. Iron, steel, and aluminium have been tried in place of copper, and have endured somewhat better than was expected; possibly experiments with alloys might indicate the choice of a metal, comparatively inert to corrosion by acid and ammonia, and hard enough to withstand the shocks of manufacture, and attrition by the crystals.

Wooden hurdles, such as are inserted in oxide purifiers at gasworks to promote porosity, are used to advantage by the Hawick Gas Company in the storage and drying of their sulphate.

Tar Works

Tar stills and dehydrators increase in number and in variety, but there is less material to supply to them. The cost of transport has had important influence. Efficiency has been much improved, even in the smaller and simpler stills, although there yet remain some which deliver "prepared tar" incompletely freed from naphtha and water.

The fumes from plants in which solid and other materials are incorporated with hot tar in order to form road cement and binding liquids have caused some annoyance. The difficulty in the complete condensation of these fumes is increased by the presence of even small amounts of water in the solids. Previous drying is easy, and waste heat is available free of cost.

A case of transgression of the provisions of the Alkali Act received lenient treatment. The tar still had been provided with proper appliances for the trapping and destruction of its foul gases. By someone unknown a length of connecting pipe had been cut out, probably in order to relieve obstruction, so that these dangerous gases were discharged directly into the air, instead of to the purifier. The manager had lately been transferred from another works; he had much to occupy him generally in renovation of worn fittings; but he knew that this pipe had been removed; he knew the danger; he had elsewhere risked his own life in order to rescue men dying from fumes such as this pipe transmitted; yet he had neglected this important repair, until my remonstrance.

Zinc Works

Blende has been smelted in large amount to produce sulphuric acid and metallic zinc. In last year's report hope was expressed that no annoyance would now be caused by the sulphur component of the blende, and this hope has been amply fulfilled. But just as in former years, the uncondensed vapours of zinc and their oxidised products have caused much annoyance in the neighbourhood. At their best, they produce an artificial fog obscuring sunlight over a large area; at their worst, after combining with stray acid gases from other sources, they prostrate men at work; the corrosive products affect the skin, the lungs and the digestive system. Only a permanent east wind to drive the zinc vapours harmlessly to sea gives relief. Condensers are provided for the retorts, but their beneficial effect is small, the cost of their maintenance is constant and heavy, and they certainly interfere in some degree with operations. Little complaint can be made of the care exercised by the owners and their staff; the fault lies in the primitive nature of the process. Its long survival astonishes, in view of the amount of metal constantly lost in the residues through absorption by the clay retorts and discharged as vapour to the air.

The alternative method of production by electrolytic means has its own special difficulties, but by its employment most of this lost zinc would be recovered as metal, and the neighbourhood of the works freed from all annoyance.

Sunflower Oil in Russia

A Growing Industry

ONE of the most valuable oilseeds in the east of Europe, especially in Russia, is the sunflower seed. In Bessarabia an important oil-milling industry is being developed, with an annual output of some 15,000 tons of oil, mainly based on the extension of sunflower cultivation; in Bulgaria the production of sunflower oil has doubled in the last year or two, and it is now the most important vegetable oil in that country; the same may be said of Hungary, where the sunflower is one of the leading crops—in fact, it has been suggested that the vineyards should be converted into fields for oleaginous crops, principally the sunflower. It is estimated that an additional yield of 500,000 tons per annum of oilseeds could be obtained, of much greater value than the produce of the vineyards.

But it is in Russia that the most remarkable extension of sunflower cultivation has taken place. Long before the war it was already a leading crop in South Russia. In 1913 out of a total area devoted to oilseeds of about 6,000,000 acres, some million and a half acres were occupied by sunflower. Under pressure of economic conditions created by the war the cultivation of oilseed crops was largely extended. The area under linseed increased in 1925 to 953,000 dessiatins (dessiatin equals about 2·7 acres), yielding 600,000 tons of seed; the area under hemp increased from 540,000 dess. in 1923 to 747,400 dess. in 1925, with a yield of about 550,000 tons of seed. The cotton crop was also considerably augmented.

Increasing Acreage

The area under sunflower, a crop which has received the special consideration of the Soviet, was trebled compared with the pre-war extent. In 1913 the area was 833,000 dessiatins; in 1916, 1,115,300 dess.; in 1924, 2,110,000 dess.; and in 1925, 2,501,000 dess. The yields per acre, however, fluctuate widely. In 1913 it was 55 poods (one pood equals 36 lb.) per dessiatin, but in 1924 the acre yield was only 42 poods per dess., and last year the yield was again poor. On the other hand there seems to have been some improvement in the percentage yield of oil from the seed. In the Kuban district it is reported that a particularly valuable variety of sunflower has been evolved, the seed of which yields no less than 50 per cent. oil, a great advance on the ordinary yield. As with most oilseeds and nuts, however, the percentage yield of oil will vary greatly with varying conditions of soil, climate and culture.

The total estimated production of oilseeds in Russia for 1925 was in the neighbourhood of 2,750,000 tons, of which the sunflower's share was nearly 1,400,000 tons. It must be remembered, too, that sunflower oil, when properly made, is a valuable edible oil, and much of it is used throughout Russia for edible purposes, although a certain amount is taken for industrial purposes, such as soapmaking. There is not, indeed, very much available for export, most of what export there is going to Germany; and huge as the crop in Russia may be, there is still a serious shortage of oilseeds in that country, so much so that some of the oilmills have had to close down for lack of material. Even the tremendous oleaginous crops of Russia are not sufficient to obviate the need for the oil wealth of the tropics—*e.g.*, coconut oil, palm and palm kernel oils, ground-nut, sesame and soya bean oils. Of all these Russia gets very little.

Food Value of Sunflower Cake

Moreover, the livestock industry has greatly declined under the chaotic conditions of Russian agriculture of the last few years. This decline brings in its train two serious difficulties: a shortage of supplies of animal fats on the one hand, and a narrower market for the sale of sunflower oilcake and other oilcakes on the other. The present position is that there is not enough oil, but too much cake. There are, of course, several ways of disposing of oilcake or meal besides feeding it to cattle. It may be used as fertiliser or as fuel, and sometimes, as with soya bean or ground-nut cake, a flour or flour constituent may be obtained. Possibly this latter purpose might be served with sunflower cake in Russia, where the peasantry are accustomed to coarse rye bread.

Review of Recent Overseas Trade Reports

Belgium, Chile and the Philippines

We publish below some account of matter of chemical interest in the latest volumes issued by the Department of Overseas Trade in its series of reports on the industrial and economic situation of the Colonies and foreign countries. These volumes comprise reports on Belgium (with an annex on the Grand Duchy of Luxemburg. To February, 1926. Pp. 147, 4s.); Chile (September, 1925. Pp. 93, 2s. 6d.); and the Philippine Islands (to June, 1925. Pp. 26, 9d.). These reports are published by H.M. Stationery Office, London.

Belgium

THE legacy of difficulties left to Belgium by the war has not yet been overcome. In particular, the financial question looms large, and "the problem of the franc remains to be solved....The coming year will be critical." But there is no question that the Belgians have faced their troubles very courageously. Not only has war-damage been repaired, but into industry there have been introduced "all improvements suggested by modern progress," to render the nation "fit to take her place amongst those of the foremost nations of the world." Capacity for production has largely increased, and there has been an immense growth in the use of electrical power. The new Campine coal basin is already proving an important factor in Belgium's economic resources.

In total imports of all kinds into Belgium in the period from January to September, 1925, Great Britain, with 12·2 per cent., was third to France and the United States. The value of chemical imports from Great Britain was 49·1 million francs, and of metals and metal articles 116 million francs. Great Britain supplied most of the coal tar (10,700 tons) and was second to France in the supply of refined salt and of essences and essential oils (the latter amounting to one million francs). Quantities of carbonate and bisulphate of soda were imported, but countries of origin are not given. Over 25,000 tons of ammonium sulphate was imported, none from this country. Aniline dyestuffs were largely supplied by Germany. As regards metallurgical products, Great Britain was second to France in the supply of pig iron, and prominent in the supply of lead ore, unrefined lead, and unrefined aluminium. Of the total exports from Belgium in the period January to September, 1925, Great Britain took the largest share (20·87 per cent.). Chemical products accounted for 67·1 million francs, and metals and metal articles for 829·2 million francs. The chemical products sent to this country included phosphates and superphosphates; metallurgical products included zinc and pig iron. It is of interest to note, in regard to the coal industry, that a large increase in the number of coke-ovens and by-product plants indicates greatly increased production of both, though no figures are available. Belgium now produces four-fifths of the world supply of radium from uranium deposits in the Belgian Congo.

Perusal of the report leaves no doubt that the equipment and development of Belgium are likely to make her a formidable competitor in world markets.

Chile

In summarising the great political activity in Chile in the last year or two it is stated that "Chile has certainly awakened from the static regime of ultra-conservatism of many generations, and this opening of the horizon has brought into play new energies, which, if left unhindered, spell great expansion in trade." From the general remarks on trading, it appears that British manufacturers will have to make powerful efforts if their position is to be maintained. "The traditional individualism of the British manufacturer, which, in the past, has stood him in such good stead, is to-day a source of further disadvantage, and there is still a good deal too much fear of the man on the other side of the road knowing what the man on this side is doing. Success can only be maintained by co-operation." The extension of the "Buy British Goods" campaign is urged. "Our principal competitors—Germany and the United States—owe their success in foreign trade in great measure to their sales organisation at home and their propaganda abroad."

In imports into Chile in 1924, the British Empire ranked first with 26 per cent. (though the United Kingdom imports showed a slight reduction), followed by the United States (23 per cent.), Germany (13 per cent.), Belgium (10 per cent.), and France (6 per cent.). All Continental countries and Japan showed increases. In regard to heavy chemicals, British post-war supremacy in the alkali trade has been maintained. Sulphuric acid is now supplied locally. In tannery chemicals, Britain's position is stronger in the case of bichromate of potash and soda and sodium sulphide, but other tannery chemicals come almost solely from the Continent. Generally speaking, our position in the heavy chemical trade is not unsatisfactory. There is a risk of the erection of a tariff barrier. For the year 1923 (the latest for which figures are available) imports of heavy chemicals totalled £328,000, mainly derived from the United Kingdom (35 per cent.), Germany (29 per cent.), the United States (12 per cent.), and France (9 per cent.). In drugs and pharmaceutical products, the imports for 1923 totalled £300,000, mainly from France (40 per cent.), the United States (28 per cent.), Germany (15 per cent.), and the United Kingdom (12 per cent.). Calcium carbide and dynamite are imported in fairly large quantities. As regards metallurgical imports (including both unworked metals and metal manufactures), the proportion derived from the United Kingdom has remained at the same level—28 per cent.—in the years 1921, 1922, and 1923. In the latter year the United States was second with 27 per cent. (reduced from 46 per cent. in 1921), followed by Germany with 24 per cent.

Of Chilean exports in 1924, the United States took 41 per cent. and the United Kingdom 34 per cent. Stress is laid on the great mineral resources of Chile. Mineral production amounted in 1924 to £37,000,000, and is steadily increasing; and "Chile's immense mineral resources have so far barely been scratched." Of the present capital investment in mineral undertakings 30 per cent. is American, and only 13 per cent. British. American interest in the nitrate industry is increasing, while the Chilean copper industry has long been controlled by American interests. The present position of the Chilean nitrate industry is too well known to need elaboration here. The amount of Chile nitrate produced in the year ended June 30, 1925, was 2,400,000 tons; this amount was produced in a period of grave labour unrest, and the total capacity is 4,500,000 tons. In the same period the world production of synthetic fired nitrogen was equivalent to 2,565,000 tons of Chile nitrate. In view of the threat offered by the synthetic method, energetic action is being taken by the Nitrate Producers' Association of Chile; a Research Department, on a scale which will cost £50,000 a year for upkeep, has been established, and the necessity for a reduction in the export tax is being strongly urged upon the Government. In regard to copper, Chile ranks second to America in production, and production is increasing. The copper bars and ore produced in the period under review have mainly been shipped to the United States, and it is unlikely that much will be sent to Europe until modern copper smelting and refining works are erected there. The latest figures for exports from Chile indicate that for substances of chemical importance the order of value is as follows: Nitrate, bar copper, iodine, iron ore, borate of lime, copper ore and silver bullion and ore.

Generally speaking, American capital investments in Chile (£90,000,000) show an increase, while British investments (£100,000,000) show a slight decrease.

Philippine Islands

In regard to general trade conditions, the report states that "the dominant factor in all considerations of Philippine trade is the free trade relation between the United States and the Islands, American goods coming in free of duty and Philippine goods entering the States similarly exempt. This gives at all times a great advantage to American goods over foreign goods, handicapped by duties averaging in 1924 over 19 per cent. *ad valorem*, and is an important ground for the high percentage of American imports. At the same time the Islands derive a greater proportionate advantage from this free trade system than the United States." In 1924 the

imports of the Islands amounted to over £24,000,000, and the exports to over £30,000,000. Over 56 per cent. of the imports came from the United States, the leading imports from Europe being 5·17 per cent. from the United Kingdom. Of the total imports, chemicals, drugs, etc., amounted to 2 per cent., and fertilisers to another 2 per cent. In both departments the United States leads easily. In regard to chemicals, drugs, dyes, etc., the imports from Europe are in the order : Germany, France, Spain, and United Kingdom (the latter over £9,000). Japan is very close to Germany in this respect. In regard to fertilisers, the United Kingdom, with nearly £24,000, seems to be the only large European exporter. The chief exports of the Islands are sugar (nearly all to the United States), hemp, coconut oil, copra, etc., and tobacco. There is a small output of precious metals, mainly gold (in 1923, gold over £357,000). Deposits of iron ore and coal exist, but are very little worked. Generally speaking, manufacturing industries are not yet in an advanced stage of development. Intending traders should note, in regard to language, that "there are a number of Philippine dialects. . . . but for commercial purposes English and Spanish are used. . . . The knowledge of English is steadily extending, but where practicable it would still be useful to have catalogues, price lists, etc., bi-lingual, English and Spanish."

Portland Cement and Sulphuric Acid from Gypsum

Notes on a German Process

The notes published below, taken from German sources, relate to a matter of importance, not only in Germany, but in all other countries where sulphuric acid is made from pyrites. One point not mentioned is that the acid product is free from arsenic.

THE production of sulphuric acid in all industrial lands is on a scale that calls for very large quantities of raw material as the source of the sulphur, which hitherto has been mainly iron pyrites. It is true that in the United States pyrites as the source of the sulphur for sulphuric acid manufacture has been considerably replaced by native sulphur produced cheaply from the large sulphur deposits of that country by the Frasch process, but in Europe iron pyrites remain the chief source of acid-making sulphur, supplemented to some extent by gases obtained from the calcination of zinc sulphide ores. In most cases the iron pyrites is imported, and the chief European sources of supply are Spain and Norway.

The idea of using domestic raw material as the source of the sulphur has often been considered, particularly in Germany, where last year a quantity of pyrites amounting to 932,618 metric tons was imported. This idea has become considerably extended in recent years in Germany due to the very unfavourable trade balance which makes it desirable to limit imports in every possible direction. In *Die Metallborse*, No. 30, 1926, Dr. Ing. B. Waeser contributes an interesting article on the production of sulphuric acid from natural sulphates, blast furnace slags, and sulphurous furnace gases, as well as other domestic sources, in which he critically discusses these sources in detail. He makes special mention of the large quantities of sulphur in the form of sulphates in the potash-salt production. He states that in the output of natural potash minerals produced in 1923 about 390,000 metric tons of sulphur were contained, of which only a small fraction was used as such. He is unable to point to any really successful process for recovering this sulphur for acid-making purposes.

The one process for utilising domestic material economically is the Bayer process of utilising the sulphur content of gypsum or anhydrite for the manufacture of sulphuric acid, and the desulphurised material for cement making. A description of the Bayer method of utilising calcium sulphate minerals as a source of Portland cement and sulphuric acid was given by W. J. Muller in *Zeitschr. F. Angew. Chem.*, No. 38, 1925, pp. 794–5. Herr Muller lists the gypsum and anhydrite deposits in Germany, showing that they constitute an inexhaustible source of sulphate minerals and are widely distributed in the country in formations of several geological ages. He also discussed the earlier unsuccessful attempts to utilise these minerals for sulphuric acid production, most of which were devised with the idea of obtaining sulphur gases and a commercial lime by decomposing the mineral by heating. The Bayer process, with which Herr Muller is concerned, however, has concentrated upon the production from the mineral of Portland cement, with the sulphuric acid as a by-product.

Regarded from a thermal standpoint, the decomposition of calcium sulphate by simple heating is scarcely economic because of the high temperature involved. The equation, according to Muller, is as follows :

$$CaSO_4 = CaO + SO_2 + O - 116{\cdot}36 \text{ Cal.}$$

but if the decomposition is carried out in the presence of carbon the equation becomes :

$$CaSO_4 + C = CaO + SO_2 + CO - 87{\cdot}36 \text{ Cal.}$$

Expressed in another form, the decomposition without carbon requires a temperature of 1,590° C., and with carbon about 800° C. The thermal decomposition of calcium carbonate requires a temperature of about 900° C. at atmospheric pressure from which it was reckoned that the calcium sulphate-carbon in a raw cement mixture would behave like calcium carbonate.

A laboratory research by the Leverkusen Farben-fabrik with a mixture of gypsum, coal and clay, in proportions to form a normal Portland cement, disclosed some early difficulties, one of which was the reaction of the mixture with ordinary crucible material, but eventually, after a suitable material for the crucible had been found, the resulting clinker was found to possess all the properties of a good Portland cement clinker.

Following on this result, experiments were made in a rotary cement furnace. At first great difficulties were experienced which have since been successfully overcome. The experimental work established the following points :

(1) In order to obtain a gas with a sufficient concentration of sulphur dioxide for acid manufacture, the mixture must be fed dry into the furnace.

(2) The air supply to the furnace, and the gas conditions within the same, must be regulated to maintain a weakly oxidising atmosphere to avoid the production of calcium sulphide in the clinker.

(3) That the theoretical carbon content of the mixture according to the equation given above is unfavourable for the process, because it produces a too strong reduction tendency.

By systematic experiments it was found that about half of the theoretical quantity of carbon and a small excess of oxygen in the air supplied to the furnace resulted in a practically sulphur free clinker and a suitable concentration and purity of the gas mixture leaving the furnace. It was found that if the carbon was further reduced some sulphate remained undecomposed in the clinker.

The process, which is covered by the German Patent No. 388,849, is now being used in a large plant at Leverkusen, this plant having a capacity for handling 100 tons of the mixture per day. The furnace is a rotary one, having a length of 50 metres and a diameter of 2½ metres. The materials used—mineral, coal, and clay schist—are crushed, and finally treated in a ball mill in order to ensure an intimate mixture. The furnace is heated with pulverised coal fuel, the coal being prepared on the plant, unless the powdered waste from the coal briquetting factories is used. The cement corresponds completely to a normal Portland cement, but is actually converted into blast furnace cement by being mixed with 70 per cent. of blast furnace slag. The properties of this mixture are stated to be very good.

The monthly output of the plant is stated to be about 1,000 tons of clinker and about 900 tons of SO_3. The pre-war production of cement in Germany was about 7,150,000 tons per annum. If the sulphuric acid produced in Germany in 1920 had all been obtained from gypsum, the cement equivalent would have been about 1,500,000 tons, or about a fifth of the total pre-war production.

The substitution of gypsum and clay for the marl or limestone and clay ordinarily used for cement manufacture requires no essential increase in the cost of the plant, while the consumption of fuel is about the same. But instead of passing carbon dioxide up the shaft, sulphur dioxide is obtained as a valuable by-product for acid making from a domestic and not a foreign source.

Indian Chemical Notes

(From Our Indian Correspondent.)

According to the report of the Dharamsi Morarji Chemical Co., Ltd., for the year ending September, 1925, their factory continued to produce sulphuric, hydrochloric, nitric, and phosphoric acids, as well as other heavy chemicals, in the manufacture of which considerable quantities of their surplus acids were utilised. With a view to increasing their retail sales the company this year opened their own shop in Bombay. The cost of production has been reduced, though, owing to severe decline in the prices of imported chemicals, the working for the year showed a loss of Rs. one lakh. The company approached the Government of India in regard to protection for their manufactures, with particular reference to acids and sulphates, but their case has not yet been referred to the Tariff Board. The mill industry is the principal consumer of the company's products, but this at present is also in a depressed condition.

Quinine Manufacture in Bengal

The Government factory in Bengal for the manufacture of quinine produced during the last year 19,230 lb. of quinine sulphate and 8,350 lb. of other alkaloids. There was a considerable increase in the total output of the factory, but this was in products from Java bark. The manufacture of quinine tablets for sale through post offices is now temporarily carried on in the Presidency Jail, and machines for the purpose have been ordered and will be installed at the Mungpoo factory, where the manufacture will be transferred. Provision has also been made for the erection of ferro-concrete tanks for storing quinine in the crude form, as storage in tins has been found unsatisfactory.

Artificial Silk Imports

The imports of artificial silk into India in 1925-26 amounted in value to Rs. 218 lakhs. The value of piece goods imported amounted to 134 lakhs, of which about half was imported from the United Kingdom, and one-third from Italy. These imports of piece goods have been declining in recent years, but, on the other hand, the imports of artificial silk yarn more than doubled during the year and reached 2·6 million lb. This increase in the imports of yarn is due to the fact that Indian handlooms are now increasingly using artificial silk yarn, especially for women's wear. This trade is likely to increase enormously in the future.

The Trade in Glass

The imports of glass into India in 1925-26 amounted in value to Rs. 260 lakhs. Czechoslovakia and Japan were the principal suppliers, and the share of the United Kingdom was only Rs. 26 lakhs. Funnels, globes, etc., imported were valued at Rs. 15 lakhs, sheet glass at about Rs. 28 lakhs, and bottles and phials at Rs. 37 lakhs.

The Dharamsi Morarji Woollen Mills have commenced manufacturing leather and oilcloths, and these are having a ready sale. The chief consumers are the railways.

Chemical Bibliographies

"A Bibliography of Bibliographies on Chemistry and Chemical Technology, 1900–1924," by Clarence J. West and D. D. Berolzeimer, is announced by the National Research Council, Washington, D.C., as their Bulletin No. 50 (308 pp., $2.50). This work is composed of the following sections: General Bibliographies, Abstract Journals and Year Books, General Indexes of Serials, Bibliographies of Special Subjects, and Personal Bibliographies. As the title indicates, the work is a compilation of bibliographies published as separates, or at the end of books or magazine articles, or as footnotes to the same, on the numerous aspects of pure and applied chemistry. Each entry gives name of author or compiler, title, and place of publication. The majority of the entries state the number of references, thus giving an indication of the completeness of each particular bibliography. The entries are classified under the proper subject-headings, alphabetically arranged. The duplication of individual entries has been largely avoided by the liberal use of cross-references. An approximate analysis shows that there are about 2,400 subject-headings, 7,500 author entries, and a total of 10,000 individual bibliographies. Although no claim is made for the completeness of the compilation, it is believed that the work will furnish a convenient starting-point for any bibliographic search.

German Potash Production

Effects of Amalgamation

The German Wirtershall potash group has just issued the annual reports of the various undertakings in which it is interested. As the holding concern of the group and of the future undertaking in which it is intended to combine the chief constituents of the group through the amalgamation scheme which is being prepared, the report of the Kali Industrie A.-G. of Cassel probably presents the largest measure of interest.

The report of the latter points out that the average net prices for potash salts in the home market, which are on the average lower than pre-war prices, and the extraordinarily unfavourable export prices, have hitherto only been endurable because the German potash industry in general has concentrated production and working up in the works best situated and provided with the most modern equipment, these latter making up for the output of the works which have been stopped. The hope of realising a large increase in sales has also been a factor. The extension of the works retained, and the compensation of the staff and the workmen at those brought to a standstill has necessitated considerable expenditure, and the assumption of the quotas in the Potash Syndicate of the works now idle has been associated with large obligations of a lasting character. Owing to the increase in burdens and expenses, the potash industry has reached the point at which even the best works may have to give up the idea of being remunerative, unless relief becomes available. The report proceeds to refer to the arrangements made with the Alsatian potash industry, without, however, giving precise information concerning the new agreements.

The production of potash salts in other countries is stated to be comparatively unimportant, but disturbing to prices. In this connection the report mentions that the world sales in 1925 amounted in round figures to 1,588,000 metric tons of K_2O, of which Germany provided 1,226,000 tons, the Alsatian works 310,000 tons, Poland 22,500 tons, and America 30,000 tons, while a comparatively small quantity was supplied by the Spanish potash works. At the end of 1925 the Wintershall group had a quota in the Potash Syndicate of 390·53 thousand parts. Fifty-four shafts have been laid idle, and production last year took place at nine works, with four installations only turning out crude salts, the remainder of the works being kept in reserve.

Cambridge Chair of Mineralogy

Mr. A. Hutchinson, M.A., F.R.S., Fellow of Pembroke College, has been elected to the Professorship of Mineralogy in the University of Cambridge in succession to the late Professor Lewis. Mr. Hutchinson was educated at Clifton College, whence he got a scholarship at Christ's College, Cambridge, in 1884. He gained first class in both parts of the Natural Sciences Tripos, with distinction in chemistry. He studied chemistry at Würzburg under Professor Emil Fischer, and there took the Ph.D. degree. For a time he was demonstrator in chemistry in the Laboratory of Gonville and Caius College, but in 1896 he became Demonstrator of Mineralogy and later Lecturer on Crystallography. He was elected Fellow in Natural Science of Pembroke College, and has been president of the Mineralogical Society. He has made numerous contributions to scientific periodicals on chemistry, crystallography, and mineralogy.

Element No. 61

Element No. 61 in the Periodic Classification, the discovery of which was recently claimed by J. A. Harris, L. F. Yutema, and B. S. Hopkins, is the subject of two papers in the June number of the *Journal of the American Chemical Society*. These papers are respectively: "Observations on the Rare Earths, XXIII, Element No. 61, Part One, Concentration and Isolation in the Pure State," by J. A. Harris with B. S. Hopkins; and "Observations on the Rare Earths, XXIII, Element No. 61, Part Two, X-ray Analysis," by J. A. Harris, with L. F. Yutema and B. S. Hopkins. In the latter paper the authors state that they base their claim to the discovery of a new element on evidence derived from arc spectra, absorption bands, and X-ray spectra.

Bleachers' Association

Chairman's Speech at Annual Meeting

AT the 27th annual meeting of the Bleachers' Association Ltd., held in Manchester on Thursday, June 24, the Chairman (Sir Alan J. Sykes) in his speech alluded to the general strike, and stated that, like all other industries in the country, the bleaching industry was subjected to considerable inconvenience owing to the general strike. They were not affected directly to any great extent. The firm's chemical works employees left their work without notice, and a few of the employees in trades associated with the building industry followed the same course. All the bleaching employees remained at their work, and, generally speaking, the firm were able to carry on, naturally on a reduced basis of output, but without seriously inconveniencing their customers.

The directors continued to give their constant attention to the wellbeing of their employees, and during the past year had been building a further twenty-five houses at their garden village at Unsworth, which the firm had started some time ago. They had also put up during the year six houses at their bleachworks in the neighbourhood of Londonderry, in Ireland. These houses were a very great improvement on the type of house to which the workman was accustomed in that part of the world. They also had plans for building houses in connection with two of the Scotch works, and he hoped to be able to report on the completion of these next year. In addition to housing, the firm were continuing their policy of providing bowling greens and tennis courts in connection with the various works wherever they found a demand for them.

With regard to artificial silk, the firm were not manufacturers but bleachers. In the nitro, cuprammonium, and acetate processes, cotton had had a clear field; but in the viscose process, wood pulp, as the cellulose base, had been used to a very large extent. It had now been demonstrated as a result of scientific research that pure cotton cellulose was much superior to wood cellulose, giving a silk of enhanced strength and durability. The leading viscose silk manufacturers of this country and abroad—more especially in America—were using increasing quantities of cotton, and the Association was at all times willing to work in close co-operation with the art silk manufacturers in order to supply a product with the particular physical and chemical characteristics required by the individual manufacturer. Closely allied was the production of cellulose for the motor-car lacquer trade, and the Association was well to the fore in this recent development. In addition to this work in connection with the production of cellulose, one of the firm's branches is specialising in bleaching and finishing cotton in the raw state. In this class of work they looked forward to development.

Pharmacists as Postmasters

ON Tuesday in the Chancery Division Mr. Justice Lawrence had before him the motion of Frampton *v.* Gillison and another, which was a motion by Albert Frampton, a builder, against Dr. J. A. Gillison and Messrs. Stirling and Sons, Ltd., chemists, to restrain them from carrying on a business or trade at 10, Bromley Hill, Bromley, in breach of a covenant not to carry on any trade there other than "chemistry, drugs, dentist, or doctor."

Mr. Jenkins said the motion would be treated as the trial of the action. The plaintiff had sold to the defendant the premises for use as a chemists, etc., and his complaint was that the defendant had obtained and opened a branch post office there. He had a scheme with regard to the estate that no other competitive shop should be established on the parade of shops. The defendant sold postcards and envelopes, which really made it a stationer's business, which plaintiff had provided as a trade for another shop. Counsel submitted that under the covenant the defendant could not carry on the trade of a post office.

Mr. Evershed contended that this was not a "competitive trade," the Crown having the monopoly of post offices, and therefore there had been no breach of the covenant.

His lordship held that the defendant's argument was sound in that the post office was a branch of the public service, and outside altogether the purview of the covenant and not a competitive trade. He dismissed the motion with costs.

Chemical Matters in Parliament

Low Temperature Carbonisation

Lord E. Percy (House of Commons, June 24), replying to Mr. Lawson on behalf of the Secretary for Mines, said that in 1924 the Government had authorised the Department of Scientific and Industrial Research to increase the annual expenditure on fuel research by a sum then estimated for 1925 at about £25,000, and for subsequent years at £35,000. The actual expenditure of the Department on fuel research was £48,145 in 1924, and £76,241 in 1925, an increase of £28,000. The expenditure for 1926 was estimated at from £92,000 to £102,000, a total increase of about £45,000 or more over the 1924 expenditure.

Mr. Paling asked if the experiments which had been carried out in low temperature carbonisation had reached such a stage as to become a commercial proposition, or to be likely to become a commercial proposition in the near future?

Lt.-Com. Kenworthy asked whether, in the debate on June 22 the Minister of Health had not declared that no smokeless fuel suitable for domestic grates had been discovered after all this expense?

Mr. W. M. Watson asked whether the low-temperature carbonisation of coal was to form part of the Government scheme for the reorganisation of the coal trade; if so, whether it was intended to proceed by administrative action; and whether it would take the form of assisting private enterprise or by the Government establishing carbonisation plant in various parts of the coalfields?

Lord E. Percy, replying for the Department of Scientific and Industrial Research, said that in the opinion of the Department it was doubtful whether any of the existing schemes for low-temperature carbonisation, though they contained many elements of promise, had as yet passed beyond the experimental stage. Low-temperature carbonisation could not, therefore, as yet form part of any scheme for the reorganisation of the coal trade. As soon as any process or processes of low-temperature carbonisation were shown to be commercially practicable, it could not be doubted that private enterprise would rapidly develop them. In the meanwhile, the Department of Scientific and Industrial Research was carrying on its own investigation at the fuel research station, and was giving its assistance in testing results which were obtained elsewhere. In these circumstances the latter part of Mr. Watson's question did not for the moment arise.

Rock Salt Royalties

Mr. Taylor (House of Commons, June 28) asked the Secretary for Mines if any royalties were paid on salt mined in Great Britain or on the pumping of brine from which salt is produced; and the amount of income from such royalties, if any, received in the last convenient year?

Colonel Lane Fox replied that royalties were paid both on rock salt and on brine. He had no definite information as to the total amount of income from such royalties, but he was informed that for the financial year 1925–26 the net amount of such income (including wayleaves) for purposes of Mineral Rights Duty was approximately £27,000.

Sheffield University's Coming-of-Age

ON Thursday and Friday various functions were held at the University of Sheffield to celebrate the twenty-first anniversary of its foundation. The university was opened in 1905 by King Edward, and his granddaughter, Princess Mary, took part in the present celebration. At a Degree Congregation held on Thursday, various honorary degrees were conferred, Professor P. F. Frankland receiving the degree of Doctor of Science. New engineering and metallurgical laboratories were opened on Friday by Sir Robert Hadfield, who provided one of the laboratories.

Canadian Helium Development Likely

COMMERCIAL development of helium gas in Ontario on a large scale is expected to result from experimental work that the Provincial Department of Mines, in co-operation with the University of Toronto, is to carry out this summer at the Government's land at Inglewood, where helium gas was found during the war, but kept secret until a few months ago.

From Week to Week

SIR HUGH AND LADY BELL have been presented with a silver rose bowl, in commemoration of their golden wedding, by the Yorkshire Rural Friendly Society.

THE CASSEL CYANIDE COMPANY, LTD., have elected Mr. J. L. Deuchar, a director of the Castner-Kellner Alkali Company, Ltd., to the board of the company in place of the late Mr. A. T. Smith, under the terms of the agreement between the two companies.

MR. C. T. KINGZETT, F.I.C., has resigned the office of chairman and director of the "Sanitas" Co., Ltd., the business of which was founded by him in 1877. He is succeeded by his son, Mr. N. F. Kingzett, who has been associated with him for many years and is also chairman of the recently-created Sanitas Trust, Ltd.

RADIUM FOR CANCER TREATMENT is required by the Glasgow Royal Cancer Hospital, who are appealing for funds to secure a supply. At present radium can only be obtained, in the form of its emanation (radon), from the West of Scotland Radium Committee, which can only send small amounts at intervals, hence limiting the number of cases which can be treated.

MR. G. MALCOLM DYSON, well known as a contributor to THE CHEMICAL AGE, has given up his consulting practice in London in order to take over the chemical and bio-chemical work of the Laboratory of Applied Pathology and Preventive Medicine, Manchester, of which Dr. Arnold Renshaw is the director. Mr. Dyson's address is the Laboratory, 3, Artillery Street, Deansgate, Manchester.

SIR DANIEL HALL, CHIEF SCIENTIFIC ADVISER to the Ministry of Agriculture, and Niels Bohr, Professor of Physics and Director of the Institute of Theoretical Physics in the University of Copenhagen, are among a number of scientists on whom it will be proposed in Convocation of the University of Oxford to confer the degree of D.Sc., *honoris causa*, on the occasion of the forthcoming visit of the British Association to Oxford.

THE MINES BRANCH of the Dominion Department of Mines, Canada, has just published in its Summary Report for 1924 two reports by Mr. M. F. Goudge dealing respectively with "Magnesium Sulphate in British Columbia," and with "Sodium Carbonate in British Columbia," copies of which can be obtained on application to the Natural Resources and Industrial Information Branch, The Canadian Building, Trafalgar Square, London, S.W.1.

FRIED. KRUPP GRUSONWERK AKTIENGESELLSCHAFT, of Magdeburg, announce that owing to the retirement of their present London representative, Mr. W. Stamm, of 63, Queen Victoria Street, London, they have made arrangements with J. Rolland and Co., Abbey House, 2, Victoria Street, London, S.W.1, to take over their representation as from July 1. Mr. Stamm will still continue to take an active part in the business and will collaborate with J. Rolland and Co. in the working of the agency.

THE COMPTROLLER-GENERAL OF THE PATENT OFFICE has issued his report for last year. There was an increase of business done. Applications for patents numbered 33,003, an increase of 1,633 on the 1924 total. Complete specifications filed numbered 19,434, an increase of 634. Applications to register designs numbered 23,801 as compared with 22,155 in 1924. The number of new designs registered was 22,308. Total receipts were £476,044, an increase of £4,890. The surplus of receipts over expenditure was £88,540.

THE FRANKLIN INSTITUTE OF PENNSYLVANIA has awarded the Howard N. Potts medal to Howard N. Matheson, of Shawinigan Falls, Canada, for his process for the conversion of acetylene to acetaldehyde, and its oxidation to acetic acid, "in consideration of the inventive skill and ingenuity and the application of scientific information displayed in the development of a successful commercial process for the oxidation of acetylene to acetaldehyde and acetic acid from previously known chemical reactions." The requisite acetaldehyde is prepared from acetylene and water by catalysis with a mercury salt.

THE BOARD OF TRADE has now received a copy of a Law, dated March 3, providing for the appointment of a Commission to draw up a Turkish Pharmacopœia ("Codex Turc"). The Commission is to draw up lists specifying, in Turkish, French and Latin, all medicinal plants and chemical products, simple or compound, organic or inorganic, used in human or animal medicine; lists indicating the chemical composition of such plants and materials; the method of their preparation; their physical and chemical properties, characteristics, etc.; methods of analysis to be applied to ascertain their purity and to discover adulteration or substitution; maximum and minimum doses, etc. The Pharmacopœia, when prepared, will be put into force by Presidential Decree, and all chemists and druggists will be bound by its provisions. All examinations and analyses by druggists and chemists and in the Customs are to be made on the basis of this Pharmacopœia. The Commission is to meet at five-year intervals, to make any necessary modifications in the Codex. The text of the Law (in French) can be seen by persons interested on application to the Department of Overseas Trade.

FOAMITE FIREFOAM, LTD., London, announce that they have received a contract from the Anglo-Persian Oil Co., Ltd., for a Foamite installation for the protection of the large oil tanks on the transit site near Swansea.

DR. T. A. STANTON, since 1921 Director of Government Laboratories in the Federated Malay States, has been appointed Chief Medical Adviser to the Secretary of State for the Colonies. He will probably take up his duties in August.

THE DUTCH Enka Artificial Silk Factory is marketing a new thread with the trade mark, "Amplum." It is claimed that the product is of high quality, and surpasses "Enka" silk. No new machinery or plant are required for the process.

RECENT WILLS include: Mr. Albert Tompkin, of Glen View, Nottingham, Research chemist, £6,063. Mr. Sidney Fowle, of Croydon, Surrey, proprietor of Hooper and Co., chemists, King William Street, London, E.C., £16,166. Mr. Joseph Taylor, of Berwyn, Merlin Road, Blackburn, dyer, £51,084.

A SCHOOL OF PHARMACY was contemplated at the annual meeting of the Sheffield Pharmaceutical and Chemical Society, when it was intimated that in the near future there was a possibility of such a school being opened at Sheffield University. The gift of a scholarship by Newton Chambers, Ltd., of Sheffield, open to all pharmaceutical students and chemists' apprentices in the Sheffield area, valued at 30 guineas per annum and fees, was also announced.

A THIRTY CWT. Thornycroft type "A1" lorry, in the three days' reliability trial organised recently by the Transvaal Automobile Club for petrol commercial vehicles, made a non-stop run over the whole 514 miles course, gaining full marks for efficiency, reliability, and hill-climbing, and securing the "Stanton" trophy offered for the most meritorious performance in its class. The "Stanton" Trophy was won in the 1925 trial by a similar Thornycroft vehicle.

APPLICATIONS ARE INVITED for the following appointments: Head of the Chemistry Department, Borough Polytechnic Institute, Borough Road, London, S.E.1. London (Burnham) scale of remuneration, £480-£25-£630. Particulars from the Principal.—Assistant Agricultural Chemist in the Department of Science and Agriculture, Barbados, for research in relation to sugar growth and manufacture. £500-£25-£600. Particulars from the Private Secretary (Appointments), Colonial Office, 38, Old Queen Street, London, S.W.1. July 31.—Research Fellowships for work on textiles or any problem having a bearing on wool, in chemistry, engineering, physics, or other sciences. Particulars from the Secretary, The British Research Association for the Woollen and Worsted Industries, Torridon, Headingley, Leeds. July 31.—Lectureship in Chemistry, University of Durham (Armstrong College), Newcastle-upon-Tyne. Special qualifications desirable in organic or bio-chemistry. Particulars from the Registrar. July 17.

Obituary

MR. JOHN PEAK, Preston and Wigan, aged 65, a director of John Peak and Co., Ltd., Bridgewater Chemical Works, Newtown, Wigan.

MR. CHARLES SEDDON, Chester, aged 71, the founder of the firm of Charles Seddon, Ltd., salt merchants, of Chester, whose special salt is used in the making of Cheshire cheese.

PROFESSOR D. B. WATERS, aged fifty-four, of Otago University School of Mines, N.Z. The late professor obtained his diploma from Otago University in 1890, and spent several years in practical mining and metallurgical work.

PROFESSOR ALFRED MICA SMITH, at Ballarat, Australia, who for about 42 years was lecturer in chemistry and metallurgy at the Ballarat School of Mines. He was at one time research assistant to Professor Playfair at Edinburgh.

MR. CHARLES PAXTON MARKHAM, of Ringwood Hall, Chesterfield, aged 63. Mr. Markham was chairman of four colliery companies, a director of three others, and was also on the directorate of several steel and iron companies. Among them was the Staveley Coal and Iron Company, of which he was chairman. He was one of the witnesses heard by the Samuel Coal Commission, and there were some keen passages when he was under the cross-examination of Mr. Herbert Smith. In the course of his evidence he mentioned that 1,100 workpeople were shareholders in the Staveley collieries.

MR. JOHN CHRISTIE, J.P., of Alexandria, Dumbartonshire, a dyestuffs pioneer, aged 82. For some years Mr. Christie was connected with the firm of John Orr Ewing and Co., Turkey red dyers, of Alexandria, and became a partner in 1878. Twenty years later he became the first chairman of the Turkey Red Company, Ltd., which position he held until his retirement in 1922, when he was succeeded by his son, Mr. H. W. Christie. Mr. Christie was interested in the development of dyestuffs and, with the late Sir Robert Pullar, of Perth, carried out the first trials with aniline mauve, discovered by Sir W. H. Perkin. Mr. Christie was for some years a director and chairman of the British Alizarine Company. He was a member of the Incorporation of Bonnetmakers and Dyers.

(*Continued from p.* 10)

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The following information is prepared from published Patent Specifications and from the Illustrated Official Journal (Patents) by permission of the Controller to H.M. Stationery Office. Printed copies of full Patent Specifications accepted may be obtained from the Patent Office, 25, Southampton Buildings, London, W.C.2, at 1s. each

Abstracts of Complete Specifications

252,262. TITANIUM PIGMENTS, PREPARATION OF. J. Blumenfeld, 16, Addison Crescent, London, W.14, and M. Mayer, Karlsbad, Czecho-Slovakia. Application date, November 28, 1924.

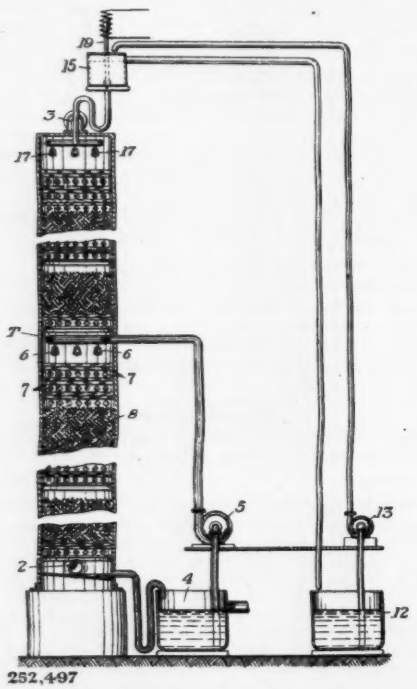
The object is to produce a durable titanium pigment which is not subject to "chalking off." In one method, finely ground oxide or hydroxide of titanium is suspended in a solution containing compounds of the titanium-thorium family, and an oxide or hydroxide is precipitated in the pores of the titanium compound. In another method, titanium oxide is mixed with a colloidal solution of one of the above oxides or hydroxides, and the water evaporated so that the colloidal compound is deposited on the titanium oxide. Examples are given of the use of titanyl sulphate and colloidal thorium oxide.

252,460. AMINES, SUBSTITUTION PRODUCTS, AND NITRILES. K. F. Schmidt, 43, Bergstrasse, Heidelberg, Germany. Application date, February 27, 1925.

Amido groups are introduced directly into aromatic hydrocarbons by the action of hydrozoic acid and a concentrated mineral acid. Thus, benzene may be converted into aniline, *p*-xylol into *p*-xylidine, benzaldehyde into benzonitrile, acetone into methyl-acetamide, benzophenone into benzanilide, etc.

252,497. REMOVAL OF NAPHTHALENE AND ANALOGOUS HYDROCARBONS FROM FUEL GASES. H. Wade, London. From The Koppers Co., Union Trust Building, Fifth Avenue and Grant Street, Pittsburgh, Pa., U.S.A. Application date, March 25, 1925.

The apparatus is for the complete removal of naphthalene, etc., from fuel gas. A scrubbing tower T is provided with a



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gas inlet pipe 2 and outlet pipe 3, and a naphthalene solvent is supplied from a tank 4 by a pump 5 to spraying nozzles 6. The solvent passes over hurdles 7 formed of wooden staves about one inch square laid with the edges of one layer resting on the edges of the layer below. The solvent then passes through a layer of steel turnings 8 supported on another set of wooden hurdles. The steel turnings offer a very large surface area with a low resistance to the passage of gas. The gas on passing the sprayers 6 contains not more than 15–30 grains of naphthalene per 100 cub. ft., and passes into a similar absorbing section in the upper part of the tower, which is supplied with fresh solvent from a tank 12 by pump 13, which delivers it to a tank 15 and sprayers 17. This solvent should be free of naphthalene and should be injected at high rates for short periods of time controlled by a timing valve 19.

252,500. METALLIC XANTHATES, MANUFACTURE OF. British Dyestuffs Corporation, Ltd., 70, Spring Gardens, Manchester, C. J. T. Cronshaw and W. J. S. Naunton, Crumpsall Vale Chemical Works, Blackley, Manchester. Application date, March 27, 1925.

Insoluble xanthates are produced without the use of alcohol of high concentration, or means for keeping down the reaction temperature. A solution of alkali metal hydroxide in water is treated with the theoretical quantity of alcohol as methylated spirit, or in the case of the higher homologues, as a constant-boiling mixture of alcohol and water, and carbon disulphide. The reaction vessel is at first provided with a reflux condenser and then with an ordinary condenser in which unchanged carbon disulphide and alcohol are recovered by distillation. The crude alkali xanthate is dissolved in water and treated with sufficient dilute hydrochloric acid to neutralise free alkali and decompose alkali thiocarbonates. The solution is then treated with the theoretical quantity of the soluble salt of the metal which gives an insoluble xanthate.

252,570. ISOLATING ALCOHOLS OR PHENOLS FROM MIXTURES. PROCESS FOR. Anton Deppe Söhne, Hamburg-Billbrook, Germany, and F. O. Zeitschel, 45, Marienthalerstrasse, Hamburg, Germany.

The mixture is analysed to determine the quantity of alcohol or phenol, and is then mixed with the double anhydride of boric acid and acetic acid $B(OCOCH_3)_3$. The acetic acid formed and the more readily volatile by-products are distilled off, and the triborates are decomposed by water or aqueous alkalis. The double anhydrides of arsenious acid, antimonious acid, or phosphorous acid may be used in a similar manner. The alcohols and phenols are thus obtained pure. This process is particularly applicable to the chemistry of terpenes and the essential oils.

252,573. CATALYTICALLY PREPARING METHANOL OR HIGHER ALCOHOLS OR OTHER OXYGENATED ORGANIC COMPOUNDS OR MIXTURES. L. Casale, 9, Via del Parlamento, Rome. Application date, July 27, 1925.

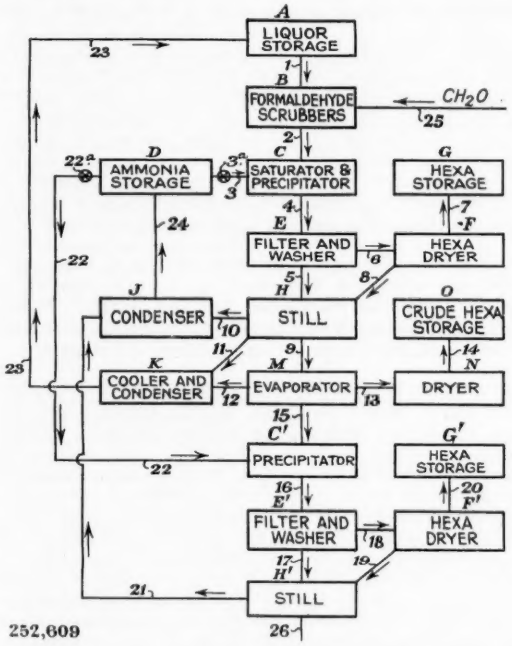
In the manufacture of methanol, etc., from carbon monoxide and/or dioxide and hydrogen and/or hydrocarbons, the use of a circulating pump is liable to introduce oil into the gases, which must afterwards be removed completely to avoid poisoning the catalyst. In this invention, the gas mixture is introduced into the circulating system at a higher pressure and passes through an injector which circulates the gas. There are thus no moving parts to be lubricated.

252,594. HYDROGENATED DIOXYDIPHENYL-METHANE COMPOUNDS, MANUFACTURE OF. Chemische Fabrik auf Actien (vorm. E. Schering), 170–171, Mullerstrasse, Berlin, and H. Jordan, 1, Kellerstrasse, Berlin-Steglitz, Germany. Application date, September 9, 1925.

These products are obtained by treating a condensation product of a ketone and a phenol with hydrogen in the presence of a catalyst until 6 or 12 atoms of hydrogen have entered into combination. In an example of the process, *p*-dioxydiphenyl-dimethylmethane (a condensation product from acetone and phenol) is mixed with a nickel catalyst and treated with hydrogen at 10-15 atmospheres and 170°–180° C. The reaction is interrupted when 6 atoms of hydrogen have entered into combination and the product is 4-oxy-cyclohexanyl-para-oxyphenyl-dimethylmethane. Other examples are given of products which are oils with an odour of flowers.

252,609. HEXAMETHYLENE-TETRAMINE, MANUFACTURE OF. H. Wade, London. From S. Karpen and Bros., 636, West 22nd Street, Chicago, Ill., U.S.A. Application date, October 23, 1925.

The necessity for evaporation in the production of hexamethylene-tetramine from formaldehyde and ammonia is avoided by the use of excess of ammonia which precipitates the hexamethylene-tetramine up to about 90 per cent. of the total. A dilute solution of hexamethylene-tetramine passes from a



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tank A and formaldehyde from a pipe 25 into scrubbers B, and thence to a water-cooled chamber C into which an excess of gaseous ammonia is passed from a tank D. Sufficient ammonia is employed to saturate the solution, and precipitate the hexamethylene-tetramine as formed. The precipitate is removed in a device E, and passes to a dryer F and storage G. The liquor passes to a still H where ammonia is removed and then collected in a condenser J and storage tank D. Some of the liquor passes from the still H to a cooler and condenser K, and thence to the tank A, and another portion passes to an evaporator M where water is distilled off and crude hexamethylene-tetramine obtained. The latter passes to a dryer N and storage chamber O. Alternatively, a concentrated solution may be drawn off from the evaporator M to a saturator C^1 where it is treated with ammonia from a pipe 22 to precipitate the hexamethylene-tetramine, which is recovered in a filter E^1 and passes to a dryer F^1 and storage G^1. The liquor passes on to a still H^1 for recovery of ammonia.

252,617. YELLOW AZO DYESTUFFS, MANUFACTURE OF. J. Y. Johnson, London. From Badische Anilin and Soda Fabrik, Luwdigshafen-on-Rhine, Germany. Application date, November 5, 1925.

The mono-azo-dyestuffs obtained from naphthylamine mono-sulphonic acids and diphenylamine are nitrated to obtain yellow dyestuffs which have a good affinity for wool, silk, paper and leather. The azo dyestuffs may be converted into *N*-nitroso derivatives or nitroso-amines before nitration. Silk can be dyed in a bath containing soap and Glauber's salt.

252,632 and 252,640. ETHYLIDENE DIACETATE, PROCESS FOR THE PREPARATION OF. Soc. Chimique des Usines du Rhone, 21, Rue Jean-Goujon, Paris. International Convention dates, June 13, 1925, and September 18, 1925.

252,632. In the manufacture of ethylidene diacetate from acetic acid and acetylene in presence of a mercury salt, vinyl acetate is also produced if the temperature is low, and tars are produced if the temperature is raised. In the present invention these disadvantages are avoided by employing a mercury salt of a strong acid such as sulphuric, sulpho-acetic, benzene-sulphonic, or naphthalene sulphonic, in the presence of a strong free acid and an excess of acetic anhydride. The temperature is 80° to 90° C. and only 1 per cent. of mercury is necessary.

252,640. This is an addition to 252,632, and the mercury salt is replaced by metallic mercury in the presence of ferric sulphate. The metallic mercury is readily recovered for use again.

NOTE.—Abstracts of the following specifications, which are now accepted, appeared in THE CHEMICAL AGE when they became open to inspection under the International Convention: 231,460 (Benzonaftene), relating to extraction of light hydrocarbons from heavy hydrocarbons, see Vol. XII, p. 564; 234,104 (Hydrazote), relating to nitrogen or nitrogen-hydrogen mixtures, see Vol. XIII, p. 109; 242,650 and 248,332 (W. Kyber), relating to manufacture of phosphoric acid and generator gas, see Vol. XIV, pp. 82 and 482.

International Specifications not yet Accepted

250,892. ALKYL RESORCINOLS. Sharpe and Dohme, Baltimore, Md., U.S.A. (Assignees of A. R. L. Dohme, 307, West Pratt Street, Baltimore, Md., U.S.A.) International Convention date, April 16, 1925.

Propyl, butyl, amyl, hexyl, heptyl, octyl, dodecyl, isobutyl, isoamyl, and isohexyl resorcinols are obtained by treating the corresponding acyl resorcinols with not more than 2·5 times the weight of zinc amalgam, and heating to 105° C. An example is given of the condensation of resorcinol with caproic acid in the presence of zinc chloride at 135° to 145° C. Water is added, and the oily layer distilled in vacuo. The caproyl resorcinol is reduced at 105° C. with zinc amalgam and hydrochloric acid, and the product washed with water, distilled in vacuo, redistilled, and crystallised from a mixture of toluene and petroleum ether.

250,893. ACYL RESORCINOLS. Sharpe and Dohme, Baltimore, Md., U.S.A. (Assignees of A. R. L. Dohme, 307, West Pratt Street, Baltimore, Md., U.S.A.) International Convention date, April 16, 1925.

Propionyl, butyryl, valeryl, caproyl, heptylyl, caprylyl, dodecylyl, isobutyryl, isovaleryl and isotaproyl resorcinols are obtained by adding resorcinol to a mixture of zinc chloride and the corresponding fatty acid at 130° to 140° C. The weight of zinc chloride is less than half and the weight of resorcinol less than one-third that of the fatty acid. The production of normal caproyl resorcinol is described.

250,897. AMINES, NITRILES AND TETRAZOLES. Knoll and Co., 67, Postfach, Ludwigshafen-on-Rhine and K. F. Schmidt, 43, Bergstrasse, Heidelberg, Germany. International Convention date, April 14, 1925.

Aromatic hydrocarbons or their derivatives and organic carbonyl compounds are treated with hydrazoic acid in molecular proportions in the presence of acid catalysts to obtain amines and their substitution products and nitriles. Catalysts include phosphorus pentoxide, zinc chloride, ferric chloride, phosphorus chlorides and oxychloride, aluminium chloride, thionyl chloride, tin chlorides, potassium chlorostannate, antimony chlorides, hydrochloric acid, sulphacetic acid, ethylsulphuric acid. Examples are given of the conversion of benzine to aniline, dimethyl-acetoacetic ester to acetyl amidobutyric ester, benzaldehyde to benzonitrile, cyclohexanone-carboxylic acid ester to hydrochloride of amidopimalic acid.

LATEST NOTIFICATIONS.

253,865. Process for the production of azo-dyestuffs on silk. I.G. Farbenindustrie Akt.-Ges. June 20, 1925.

253,872. Manufacture of magnesium chromates. I.G. Farbenindustrie Akt.-Ges. June 22, 1925.

253,911. Manufacture of cyclic hydrocarbons. I. G. Farbenindustrie Akt.-Ges. June 22, 1925.

253,946. Manufacture of solutions containing organic phosphorus and complex auro compounds. Cassella and Co. Ges., L. June 22, 1925.

253,950. Process of producing alkylated nitriles. I. G. Farbenindustrie Akt.-Ges. June 22, 1925.

Specifications Accepted with Date of Application

231,157 and 231,461. Treating heavy hydrocarbons to obtain combustible gas, light hydrocarbons, etc. Benzonaftene. March 24 and 28, 1924.

231,532. Dyestuffs of the anthraquinone series. Farbenfabriken vorm. F. Bayer and Co. March 31, 1924.

232,230. Indigoid dyestuffs containing sulphur. Farbwerke vorm. Meister, Lucius, and Brüning. April 9, 1924.

232,930. Producing iron from ores. Aktieselskapet Norsk Aluminium Co., April 23, 1924.

234,806. Amino metal mercapto acids or salts. W. Carpmael. (*Chemische Fabrik auf Actien (vorm. E. Schering).*) May 22, 1925.

237,228. Producing acetone and butyl alcohol. G. W. Freiberg. July 17, 1924.

240,407. Deterioration retarders for rubber. Naugatuck Chemical Co. September 23, 1924.

244,774. Treating gas liquor and other waste liquors for the recovery of phenol. L. W. Heffner and W. Tiddy. December 16, 1924.

245,473. Aluminium ethylate, Manufacture of. Chemische Fabrik auf Actien (vorm. E. Schering). January 3, 1925.

253,163. Benzanthrone derivatives. British Alizarine Co., Ltd., J. Anderson, and W. H. Dawson. February 10, 1925.

253,197. Vulcanisation of rubber. British Dyestuffs Corporation, Ltd., C. J. T. Cronshaw, and W. J. S. Naunton. March 12, 1925.

253,206. Carbonisation of wood. H. Strache and G. Poloich. March 13, 1925.

253,224. Reducing ores, etc. A. Reed. March 19, 1925.

232,264. Perylene quinones, Manufacture of. H. Pereira. April 10, 1924.

253,291. Fertilisers, Manufacture of. E. L. Pease. April 16, 1925.

253,311. Vat dyestuffs of the perylene series. O. Y. Imray. (*Farbwerke vorm. Meister, Lucius, and Brüning.*) April 28, 1925.

253,344. Production of sulphuric acid from sulphur dioxide containing gases. Metal Traders Technical, Ltd. (*Metallbank und Metallurgische Ges. Akt.-Ges.*) May 21, 1925.

253,370. Extraction of copper from ores, concentrates or residues. H. S. Mackay. July 2, 1925.

253,377. Polyazo dyestuffs, Manufacture of. A. G. Bloxam. (*Chemische Fabrik Griesheim Elektron.*) July 20, 1925.

253,386. Anthraquinone derivatives, Manufacture of. J. Y. Johnson. (*Badische Anilin and Soda Fabrik.*) August 12, 1925.

253,457. Monoazo dyestuffs, Manufacture of. W. Carpmael. (*Farbenfabriken vorm. F. Bayer and Co.*) June 29, 1925.

Applications for Patents

Baddiley, J. British Dyestuffs Corporation, Ltd., Shepherdson, A. and Thornley, S. Manufacture of vat dyes. 15,609. June 21.

Baddiley, J., Brightman, R., British Dyestuffs Corporation, Ltd., and Chorley, P. Manufacture of dyestuffs, etc. 16,052. June 25.

Bemberg Akt.-Ges., J. P. Production of basic copper sulphate. 16,046. June 25. (Germany, October 20, 1925.)

Bensa, F. Manufacture of nitriles of the perylene series. 15,734. June 22. (Austria, June 26, 1925.)

Carpmael, W. and I. G. Farbenindustrie Akt.-Ges. Manufacture of chromium compounds. 16,067. June 25.

Cassella and Co. Ges., L. Manufacture of solutions containing organic phosphorus, etc. 15,641. June 21. (Germany, June 22, 1925.)

Castner-Kellner Alkali Co., Ltd., Moore, J. W., and Polack, W. G. Process of manufacturing ammonium chloride. 15,951. June 25.

Castner-Kellner Alkali Co., Ltd., Moore, J. W., and Polack, W. G. Manufacture of ammonium chloride crystals. 15,952. June 25.

Chemische Fabrik auf actien, vorm. E. Schering. Manufacture of colourless products of dialkylbarbituric acids, etc. 16,144. June 26. (Germany, July 16, 1925.)

Compagnie de Produits Chimiques et Electrométallurgiques Alais, Froges, et Camargue. Manufacture of anhydrous magnesium chloride. 15,584. June 21. (France, July 8, 1925.)

I. G. Farbenindustrie Akt.-Ges. and Imray, O. Y. Manufacture of dyestuffs. 15,586. June 21.

I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Process for heating granular materials. 15,590. June 21.

I. G. Farbenindustrie Akt.-Ges. and Mond, A. L. Process for bleaching with hypochlorites. 15,695. June 22.

I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Manufacture of para formaldehyde. 16,140. June 26.

I. G. Farbenindustrie Akt.-Ges. and Johnson, J. Y. Manufacture of hydrocyanic acid. 16,141. June 26.

Kaylene, Ltd. and Lane, W. A. Purification of china clay. 16,127. June 26.

Soc. of Chemical Industry in Basle. Manufacture of dyestuffs, etc. 16,012. June 25. (Switzerland, July 3, 1925.)

Suida, H. Preparation of concentrated acetic acid. 15,625. June 21. (Austria, July 13, 1925.)

Suida, H. Preparation of concentrated acetic acid. 15,936. June 24. (Austria, July 13, 1925.)

Synthetic Ammonia and Nitrates, Ltd. Automatic regulators. 15,533. June 21.

Hydro-Electric Developments

The Chief Competitor of Coal

THE chief cause of the decline in the demand for coal, says a correspondent, is not petroleum oil, as is popularly imagined, but water power, which is steadily effecting a revolution in the world of industry and incidentally also advancing very rapidly the bulk use of electricity in more than one industry for carrying out heat treatment and chemical reactions. How rapid has been the advance of water power is well indicated by the fact that in 1920 the world generated 23,000,000 h.p. in this way, but by the end of 1923 the figure had risen to 29,000,000 h.p., an increase of 26 per cent., and during the last three years the advance has been very much greater, so that at the present time over 35,000,000 h.p. is in use. The best customers for British coal are on the Continent, and it is therefore interesting to note that in 1921 all Europe was obtaining 8,877,000 h.p. from water, while in 1923 the figure was 12,300,000 h.p., an increase of nearly 40 per cent. France is to-day generating over 2,500,000 h.p., and will soon be altogether independent of imported coal and oil.

The same state of affairs is to be found all over the world, in the United States, Canada, Japan, India, Siam, South Africa, the Malay States, Ceylon, New Zealand, Tasmania, Brazil and Ireland, to take a few cases. Moreover, water power will undoubtedly continue to grow at an even more rapid rate, and already hundreds of millions of pounds of capital are invested in it. The general principle is bound to grow still more rapidly, since the scientific and efficient principle of using the energy in falling water possesses many advantages, the method being clean and having no objectionable by-products such as ash and clinker, while the wear and tear, maintenance and labour costs are low. Above all, it is a safe investment, with a steady dividend, much more so than railways or steam-driven electricity stations, for example, and equal in this respect to waterworks and irrigation barrage schemes. Great Britain raises about 250,000,000 tons of coal per annum, and, based on average figures for a number of years past, sells 45,000,000 tons abroad. This, however, obviously cannot be maintained, if only because of increasing competition from water power, quite apart from oil and lignite, and the only remedy in Great Britain for this state of affairs would seem to be to abandon the wholesale burning of valuable raw coal as fuel and to adopt carbonisation or similar treatment for the recovery of by-products and the manufacture of a chemically reactive smokeless fuel.

Necol Plastic Wood

AMONG the exhibits at the International Foundry and Allied Trades Exhibition was one of Necol Plastic Wood. It is some five years now since Necol Plastic Wood was introduced as a novel accessory on the pattern-maker's bench. Since then its uses have been developed a hundredfold. It is a moist dough, which hardens by evaporation to a solid substance similar in its properties to wood. Its hardness, when dry, is about that of pearwood, its specific gravity about ·75, and it can be papered and worked with a chisel in the same way as natural wood. Similarly it will receive nails and screws, but, having no grain, there is no tendency to split. Pressed on to any clean surface, whether of metal or of wood, while moist, Necol Plastic Wood remains firmly cemented to it when dry, and therein lies its usefulness. Since it can be moulded to a required shape, it can be used for filleting in patterns, shaping intricate parts, and for converting a damaged casting or worn bearing into a pattern for moulding a new member. Its indifference to moisture makes it ideal for pattern purposes. It is a very good electrical insulator, and since it does not absorb moisture from the air, this property is maintained. Necol Plastic Wood is manufactured by Nobel Chemical Finishes, Ltd., Stowmarket, Suffolk, and is supplied in containers from ¼ lb. upwards.

Weekly Prices of British Chemical Products

The prices and comments given below respecting British chemical products are based on direct information supplied by the British manufacturers concerned. Unless otherwise qualified, the figures quoted apply to fair quantities, net and naked at makers' works.

General Heavy Chemicals

Acid Acetic, 40% Tech.—£19 per ton.

Acid Boric, Commercial.—Crystal, £37 per ton, Powder, £39 per ton.

Acid Hydrochloric.—3s. 9d. to 6s. per carboy d/d, according to purity, strength, and locality.

Acid Nitric, 80° Tw.—£21 10s. to £27 per ton, makers' works, according to district and quality.

Acid Sulphuric.—Average National prices f.o.r. makers' works, with slight variations up and down owing to local considerations; 140° Tw., Crude Acid, 60s. per ton. 168° Tw., Arsenical, £5 10s. per ton. 168° Tw., Non-arsenical, £6 15s. per ton.

Ammonia Alkali.—£6 15s. per ton f.o.r. Special terms for contracts.

Bisulphite of Lime.—£7 10s. per ton, packages extra, returnable.

Bleaching Powder.—Spot, £9 10s. d/d; Contract, £8 10s. d/d, 4-ton lots.

Borax, Commercial.—Crystal, £23 per ton. Powder, £24 per ton. (Packed in 2-cwt. bags, carriage paid any station in Great Britain.)

Calcium Chlorate (Solid).—£5 12s. 6d. to £5 17s. 6d. per ton d/d, carr. paid.

Copper Sulphate.—£25 to £25 10s. per ton.

Methylated Spirit 64 O.P.—Industrial, 2s. 5d. to 2s. 11d. per gall. Mineralised, 3s. 8d. to 4s. per gall., in each case according to quantity.

Nickel Sulphate.—£38 per ton d/d.

Nickel Ammonia Sulphate.—£38 per ton d/d.

Potash Caustic.—£30 to £33 per ton.

Potassium Bichromate.—4½d. per lb.

Potassium Chlorate.—3¾d. per lb., ex wharf, London, in cwt. kegs.

Salammoniac.—£45 to £50 per ton d/d. Chloride of ammonia, £37 to £45 per ton, carr. paid.

Salt Cake.—£3 15s. to £4 per ton d/d. In bulk.

Soda Caustic, Solid.—Spot lots delivered, £15 2s. 6d. to £18 per ton, according to strength; 20s. less for contracts.

Soda Crystals.—£5 to £5 5s. per ton ex railway depots or ports.

Sodium Acetate 97/98%.—£21 per ton.

Sodium Bicarbonate.—£10 10s. per ton, carr. paid.

Sodium Bichromate.—3¾d. per lb.

Sodium Bisulphite Powder 60/62%.—£17 per ton for home market, 1-cwt. iron drums included.

Sodium Chlorate.—3d. per lb.

Sodium Nitrite, 100% Basis.—£27 per ton d/d.

Sodium Phosphate.—£14 per ton, f.o.r. London, casks free.

Sodium Sulphate (Glauber Salts).—£3 12s. 6d. per ton.

Sodium Sulphide Conc. Solid, 60/65.—£13 5s. per ton d/d. Contract, £13. Carr. paid.

Sodium Sulphide Crystals.—Spot, £8 12s. 6d. per ton d/d. Contract, £8 10s. Carr. paid.

Sodium Sulphite, Pea Crystals.—£14 per ton f.o.r. London, 1-cwt. kegs included.

Coal Tar Products

Acid Carbolic Crystals.—4⅝d. to 5d. per lb. Crude 60's, 1s. 4½d. to 1s. 6d.

Acid Cresylic 97/99.—1s. 8d. to 1s. 10d. per gall. Pale, 95%, 1s. 6d. to 1s. 8d. per gall. Dark, 1s. 3d. to 1s. 6d. per gall. Steady.

Anthracene.—A quality, 3d. to 4d. per unit.

Anthracene Oil, Strained.—7d. to 8d. per gall. Unstrained, 6½d. to 7½d. per gall.

Benzol.—Crude 65's, 1s. 3d. to 1s. 4d. per gall., ex works in tank wagons. Standard Motor, 1s. 10d. to 1s. 11d. per gall., ex works in tank wagons. Pure, 1s. 10½d. to 2s. 9d. per gall., ex works in tank wagons.

Toluol.—90%, 1s. 9½d. to 2s. 3d. per gall. Pure, 1s. 11d. to 2s. 9d. per gall.

Xylol.—2s. to 2s. 9d. per gall. Pure, 3s. 3d. per gall.

Creosote.—Cresylic, 20/24%, 9d. to 10d. per gall. Standard specification, middle oil, 6½d. to 7½d. per gall. Heavy, 7½d. to 8½d. per gall.

Naphtha.—Crude, 9½d. to 1s. 0½d. per gall. according to quality. Solvent 90/160, 1s. 9d. to 2s. per gall. Solvent 90/190, 1s. 3d. to 1s. 4d. per gall.

Naphthalene Crude.—Drained Creosote Salts, £3 10s. to £5 per ton. Whizzed or hot pressed, £5 10s. to £7 10s.

Naphthalene.—Crystals and Flaked, £11 10s. to £13 per ton, according to districts.

Pitch.—Medium soft, 77s. 6d. to 80s. per ton.

Pyridine.—90/140, 17s. to 20s. per gall. Heavy, 7s. to 10s. per gall.

Intermediates and Dyes

In the following list of Intermediates delivered prices include packages except where otherwise stated.

Acid Amidonaphthol Disulpho (1-8-2-4).—10s. 9d. per lb.

Acid Anthranilic.—6s. 6d. per lb. 100%.

Acid Benzoic.—1s. 9d. per lb.

Acid Gamma.—8s. per lb.

Acid H.—3s. 3d. per lb. 100% basis d/d.

Acid Naphthionic.—2s. 2d. per lb. 100% basis d/d.

Acid Neville and Winther.—4s. 9d. per lb. 100% basis d/d.

Acid Sulphanilic.—9d. per lb. 100% basis d/d.

Aniline Oil.—7d. per lb. naked at works.

Aniline Salts.—7d. to 7½d. per lb. naked at works.

Benzaldehyde.—2s. 1d. per lb.

Benzidine Base.—3s. 3d. per lb. 100% basis d/d.

***o*-Cresol 29/31° C.**—3d. to 3½d. per lb.

***m*-Cresol 98/100%.**—2s. 1d. to 2s. 3d. per lb.

***p*-Cresol 32/34° C.**—2s. 1d. to 2s. 3d. per lb.

Dichloraniline.—2s. 3d. per lb.

Dimethylaniline.—1s. 11d. to 2s. per lb. d/d. Drums extra.

Dinitrobenzene.—9d. per lb. naked at works.

Dinitrochlorbenzene.—£84 per ton d/d.

Dinitrotoluene.—48/50° C. 8d. per lb. naked at works. 66/68° C. 9d. per lb. naked at works.

Diphenylaniline.—2s. 10d. per lb. d/d.

***a*-Naphthol.**—2s. per lb. d/d.

***B*-Naphthol.**—11d. to 1s. per lb. d/d.

***a*-Naphthylamine.**—1s. 3d. per lb. d/d.

***B*-Naphthylamine.**—3s. 2d. per lb. d/d.

***o*-Nitraniline.**—5s. 9d. per lb.

***m*-Nitraniline.**—3s. 3d. per lb. d/d.

***p*-Nitraniline.**—1s. 9d. per lb. d/d.

Nitrobenzene.—5d. per lb. naked at works.

Nitronaphthalene.—10d. per lb. d/d.

R. Salt.—2s. 4d. per lb. 100% basis d/d.

Sodium Naphthionate.—1s. 9d. per lb. 100% basis d/d.

***o*-Toluidine.**—8d. per lb. naked at works.

***p*-Toluidine.**—2s. 2d. per lb. naked at works.

***m*-Xylidine Acetate.**—2s. 11d. per lb. 100%.

Wood Distillation Products

Acetate of Lime.—Brown, £8. Grey, £17 10s. per ton. Liquor, 9d. per gall. 32° Tw.

Charcoal.—£7 to £9 per ton, according to grade and locality.

Iron Liquor.—1s. 6d. per gall. 32° Tw. 1s. 2d. per gall., 24° Tw.

Red Liquor.—9½d. to 1s. per gall.

Wood Creosote.—2s. 9d. per gall. Unrefined.

Wood Naphtha, Miscible.—3s. 6d. per gall. 60% O.P. Solvent, 3s. 6d. per gall. 40% O.P.

Wood Tar.—£3 to £5 per ton, according to grade.

Brown Sugar of Lead.—£39 to £40 per ton.

Rubber Chemicals

Antimony Sulphide.—Golden, 6d. to 1s. 5d. per lb., according to quality, Crimson, 1s. 3d. to 1s. 7½d. per lb., according to quality.

Arsenic Sulphide, Yellow.—2s. per lb.

Barytes.—£3 10s. to £6 15s. per ton, according to quality.

Cadmium Sulphide.—2s. 9d. per lb.

Carbon Bisulphide.—£20 to £25 per ton, according to quantity.

Carbon Black.—5½d. per lb., ex wharf.

Carbon Tetrachloride.—£46 to £55 per ton, according to quantity, drums extra.

Chromium Oxide, Green.—1s. 2d. per lb.

Diphenylguanidine.—3s. 9d. per lb.

Indiarubber Substitutes, White and Dark.—5½d. to 6½d. per lb.

Lamp Black.—£35 per ton, barrels free.

Lead Hyposulphite.—9d. per lb.

Lithopone, 30%.—£22 10s. per ton.

Mineral Rubber "Rubpron."—£13 12s. 6d. per ton f.o.r. London.

Sulphur.—£9 to £11 per ton, according to quality.

Sulphur Chloride.—4d. per lb., carboys extra.

Sulphur Precip. B.P.—£47 10s. to £50 per ton.

Thiocarbamide.—2s. 6d. to 2s. 9d. per lb. carriage paid.

Thiocarbanilide.—2s. 1d. to 2s. 3d. per lb.

Vermilion, Pale or Deep.—5s. 3d. per lb.

Zinc Sulphide.—1s. 1d. per lb.

Pharmaceutical and Photographic Chemicals

Acid, Acetic, 80% B.P.—£39 per ton ex wharf London in glass containers.

Acid, Acetyl Salicylic.—2s. 4d. to 2s. 5d. per lb. Brisk demand.

Acid, Benzoic B.P.—2s. to 2s. 3d. per lb., according to quantity.

Acid, Boric B.P.—Crystal, £43 per ton; Powder, £47 per ton. Carriage paid any station in Great Britain, in ton lots.

Acid, Camphoric.—19s. to 21s. per lb.

Acid, Citric.—1s. 4d. to 1s. 4½d. per lb., less 5%.

Acid, Gallic.—2s. 8d. per lb. for pure crystal, in cwt. lots.

Acid, Pyrogallic, Crystals.—6s. 7d. per lb. Resublimed, 7s. 3d.

Acid, Salicylic.—1s. 3½d. to 1s. 4½d. per lb. Technical.—10¾d. to 11d. per lb.

Acid, Tannic B.P.—2s. 10d. per lb.

Acid, Tartaric.—1s. 0½d. per lb., less 5%. Market firm.

Amidol.—8s. 6d. per lb., d/d.

Acetanilide.—1s. 7d. to 1s. 8d. per lb. for quantities.

Amidopyrin.—12s. 6d. per lb.

Ammonium Benzoate.—3s. 3d. to 3s. 6d. per lb., according to quantity.

Ammonium Carbonate B.P.—£37 per ton. Powder, £39 per ton in 5 cwt. casks.

Atropine Sulphate.—11s. per oz. for English make.

Barbitone.—9s. per lb.

Benzonaphthol.—3s. 3d. per lb. spot.

Bismuth Carbonate.—12s. 6d. to 14s. 3d. per lb.

Bismuth Citrate.—9s. 6d. to 11s. 3d. per lb.

Bismuth Salicylate.—10s. 3d. to 12s. per lb.

Bismuth Subnitrate.—10s. 9d. to 12s. 6d. per lb. according to quantity.

Borax B.P.—Crystal, £27; Powder, £28 per ton. Carriage paid any station in Great Britain, in ton lots.

Bromides.—Potassium, 1s. 9d. to 1s. 11d. per lb.; sodium, 1s. 11d. to 2s. 2d. per lb.; ammonium, 2s. 2d. to 2s. 5d. per lb., all spot.

Calcium Lactate.—1s. 3d. to 1s. 4d.

Chloral Hydrate.—3s. 3d. to 3s. 6d. per lb., duty paid.

Chloroform.—2s. 3d. to 2s. 7½d. per lb., according to quantity.

Creosote Carbonate.—6s. per lb.

Formaldehyde.—£40 per ton, in barrels ex wharf.

Guaiacol Carbonate.—7s. 6d. per lb.

Hexamine.—2s. 4d. to 2s. 6d. per lb.

Homatropine Hydrobromide.—30s. per oz.

Hydrastine Hydrochloride.—English make offered at 120s. per oz.

Hydrogen Peroxide (12 vols.).—1s. 8d. per gallon f.o.r. makers' works, naked.

Hydroquinone.—4s. 3d. per lb., in cwt. lots.

Hypophosphites.—Calcium, 3s. 6d. per lb., for 28-lb. lots; potassium, 4s. 1d. per lb.; sodium, 4s. per lb.

Iron Ammonium Citrate B.P.—2s. to 2s. 3d. per lb. Green, 2s. 4d. to 2s. 9d. per lb. U.S.P., 2s. 1d. to 2s. 4d. per lb.

Iron Perchloride.—20s. to 22s., according to quantity.

Magnesium Carbonate.—Light Commercial, £31 per ton net.

Magnesium Oxide.—Light Commercial, £67 10s. per ton, less 2½%, price reduced; Heavy Commercial, £22 per ton, less 2½%; Heavy Pure, 2s. to 2s. 3d. per lb., according to quantity.

Menthol.—A.B.R. recrystallised B.P., 17s. 6d. net per lb., Synthetic, 12s. to 15s. per lb., according to quality.

Mercurials.—Red oxide, 5s. 11d. to 6s. 1d. per lb.; Corrosive sublimate, 4s. 3d. to 4s. 5d. per lb.; white precipitate, 4s. 9d. to 4s. 11d. per lb.; Calomel, 4s. 6d. to 4s. 8d. per lb.

Methyl Salicylate.—1s. 5d. to 1s. 7d. per lb.

Methyl Sulphonal.—16s. 6d. per lb.

Metol—10s. per lb. British make.

Paraformaldehyde.—1s. 9d. for 100% powder.

Paraldehyde.—1s. 4d. per lb. (1s. 2d. in carboys.)

Phenacetin.—4s. per lb.

Phenazone.—6s. per lb.

Phenolphthalein.—4s. per lb.

Potassium Bitartrate 99/100% (Cream of Tartar).—80s. per cwt., less 2½% for ton lots.

Potassium Citrate.—2s. to 2s. 1d. per lb.

Potassium Ferricyanide.—1s. 9d. per lb. in cwt. lots. Quiet.

Potassium Iodide.—16s. 8d. to 17s 2d. per lb., according to quantity.

Potassium Metabisulphite.—6d. per lb., 1-cwt. kegs included, f.o.r. London.

Potassium Permanganate.—B.P. crystals, 6½d. per lb., spot.

Quinine Sulphate.—1s. 8d. to 1s. 9d. per oz., in 100 oz. tins.

Resorcin.—4s. to 5s. per lb., spot.

Saccharin.—55s. per lb.

Salol.—3s. per lb.

Sodium Benzoate, B.P.—1s. 10d. to 2s. 2d. per lb.

Sodium Citrate, B.P.C., 1911.—1s. 8d. to 1s. 11d. per lb., B.P.C., 1923. 2s. to 2s. 2d. per lb., according to quantity.

Sodium Ferrocyanide.—4d. per lb. carriage paid.

Sodium Hyposulphite, Photographic.—£15 5s. per ton, d/d consignee's station in 1-cwt. kegs.

Sodium Nitroprusside.—16s. per lb.

Sodium Potassium Tartrate (Rochelle Salt).—75s. to 80s. per cwt., according to quantity.

Sodium Salicylate.—Powder, 1s. 9d. to 1s. 10d. per lb. Crystal, 1s. 10d. to 1s. 11d. per lb.

Sodium Sulphide, pure recrystallised.—10d. to 1s. 2d. per lb.

Sodium Sulphite, anhydrous, £27 10s. to £28 10s. per ton, according to quantity; 1-cwt. kegs included.

Sulphonal.—11s. per lb.

Tartar Emetic, B.P.—Crystal or Powder, 1s. 10d. to 1s. 11d. per lb.

Thymol.—12s. to 13s. 9d. per lb.

Perfumery Chemicals

Acetophenone.—10s. per lb.

Aubepine (ex Anethol).—10s. per lb.

Amyl Acetate.—3s. per lb.

Amyl Butyrate.—5s. 6d. per lb.

Amyl Salicylate.—3s. 3d. per lb.

Anethol (M.P. 21/22° C.).—6s. per lb.

Benzyl Acetate from Chlorine-free Benzyl Alcohol.—2s. 3d. per lb.

Benzyl Alcohol free from Chlorine.—2s. 3d. per lb.

Benzaldehyde free from Chlorine.—2s. 6d. per lb.

Benzyl Benzoate.—2s. 9d. per lb.

Cinnamic Aldehyde Natural.—20s. per lb.

Coumarin.—11s. 9d. per lb.

Citronellol.—15s. per lb.

Citral.—9s. 6d. per lb.

Ethyl Cinnamate.—10s. per lb.

Ethyl Phthalate.—3s. per lb.

Eugenol.—10s. per lb.

Geraniol (Palmarosa).—20s. per lb.

Geraniol.—6s. 3d. to 11s. 6d. per lb.

Heliotropine.—5s. 9d. per lb.

Iso Eugenol.—14s. per lb.

Linalol.—14s. to 17s. 6d. per lb

Linalyl Acetate.—17s. to 20s. per lb.

Methyl Anthranilate.—9s. 3d. per lb.

Methyl Benzoate.—5s. per lb.

Musk Ketone.—34s. 6d. per lb.

Musk Xylol.—8s. per lb.

Nerolin.—4s. per lb.

Phenyl Ethyl Acetate.—12s. per lb.

Phenyl Ethyl Alcohol.—9s. 6d. per lb.

Rhodinol.—27s. 6d. per lb.

Safrol.—1s. 8d. per lb.

Terpineol.—1s. 6d. per lb.

Vanillin.—21s. 6d. to 23s. per lb.

Essential Oils

Almond Oil.—11s. 6d. per lb.

Anise Oil.—3s. 1d. per lb.

Bergamot Oil.—28s. 6d. per lb.

Bourbon Geranium Oil.—11s. per lb.

Camphor Oil.—60s. per cwt

Cananga Oil, Java.—20s. per lb.

Cinnamon Oil, Leaf.—6d. per oz.

Cassia Oil, 80/85%.—9s. 3d. per lb.

Citronella Oil.—Java, 85/90%, 2s. 8d. Ceylon, 2s. per lb.

Clove Oil.—6s. 9d. per lb.

Eucalyptus Oil, 70/75%.—1s. 10d. per lb.

Lavender Oil.—French 38/40%, Esters, 16s. per lb.

Lemon Oil.—7s. 9d. per lb.

Lemongrass Oil.—4s. 6d. per lb.

Orange Oil, Sweet.—11s. 9d. per lb.

Otto of Rose Oil.—Bulgarian, 65s. per oz. Anatolian, 30s. per oz.

Palma Rosa Oil.—10s. 9d. per lb.

Peppermint Oil.—Wayne County, 67s. 6d. per lb. Japanese, 9s. 6d. per lb.

Petitgrain Oil.—9s. per lb.

Sandal Wood Oil.—Mysore, 26s. per lb. Australian, 17s. 3d. per lb.

London Chemical Market

The following notes on the London Chemical Market are specially supplied to THE CHEMICAL AGE *by Messrs. R. W. Greeff & Co., Ltd., and Messrs. Chas. Page & Co., Ltd., and may be accepted as representing these firms' independent and impartial opinions.*

London, June 30, 1926.

DEMAND still continues quiet and there is very little change to report in regard to the general position. Prices show extreme steadiness and it is noticed that several products have a firmer tendency. Export trade continues uninteresting.

General Chemicals

ACETONE.—A fair business is reported and the price remains firm at £82 to £83 per ton with stocks somewhat light.

ACID ACETIC.—A small trade is being done and there is no change in the price of £37 to £39 per ton for 80% technical with £1 per ton extra for pure.

ACID FORMIC.—A still better demand has been received here with price unchanged.

ACID LACTIC.—A fair business is reported and the price is steady at £43 per ton for 50% by weight technical.

ACID OXALIC.—The demand for this product is still rather poor although there is no further weakness in the price.

ACID TARTARIC.—A better demand has been experienced for this product and price is extremely steady at 11½d. per lb.

ALUMINA SULPHATE.—A fair business is being transacted in this product with competition still extremely keen for any large business passing; the present price can be taken at £5 12s. 6d. to £5 15s. for 17/18% quality, with slightly lower prices offering for large contracts.

AMMONIUM CHLORIDE continues quiet without change in price at £18 to £18 10s. per ton.

ARSENIC.—No apparent improvement is noticed here and the demand still lags; the price is nominally £13 10s. to £14 per ton.

BARIUM CHLORIDE.—A still better demand can be reported, whilst spot prices are unchanged at about £10; material is slightly easier for forward.

EPSOM SALTS.—In good request and price unchanged.

FORMALDEHYDE.—Price is distinctly firmer with demand improving and a further advance is not unlikely.

IRON SULPHATE continues in heavy demand with supplies scarce and price extremely firm.

LEAD ACETATE has been in good request, and price is firm at £45 to £46 10s. for white and £43 10s. to £45 for brown according to quantity.

METHYL ALCOHOL.—Unchanged.

METHYL ACETONE.—No improvement in demand can be reported and price is easy at £55 to £55 10s. per ton.

POTASSIUM CARBONATE AND CAUSTIC.—Unchanged with only a small business passing.

POTASSIUM CHLORATE continues in good request and price remains firm at about 3½d. per lb.

POTASSIUM PERMANGANATE.—Demand continues disappointing and competition is keen at about 7d. to 7¼d. per lb. for B.P. grades.

POTASSIUM PRUSSIATE is improving and price firm at 7d. to 7¼d. per lb.

SODIUM ACETATE.—Demand on home trade account is rather poor in spite of which prices for spot command a premium owing to the scarcity of the product; export demand is still heavy.

SODIUM BICHROMATE.—Imported makers are firmer with demand fair.

SODIUM NITRITE has been in fair request and price unchanged at £20 10s.

SODIUM PHOSPHATE continues steady and a fair volume of business has been transacted, at about £13 10s. per ton.

SODIUM PRUSSIATE.—Business has been transacted at 3¾d. to 4d. and demand is improving.

SODIUM SULPHIDE.—Unchanged in price with demand improving.

ZINC SULPHATE.—Price is unchanged and the product is in steady request.

Coal Tar Products

Owing to the continuance of the coal strike, prices quoted are in all cases more or less nominal.

90's BENZOL.—There are no quotations, except for continental material. The price asked is 2s. 2d. per gallon, f.o.b. continental port, naked.

PURE BENZOL is unobtainable.

CREOSOTE OIL is considerably firmer: the price is 7d. per gallon on rails, in the Provinces. In London, the price for spot parcels is steady at 7½d. per gallon at makers' works. There are few offers.

CRESYLIC ACID is in very great demand, both as regards the pale and dark qualities. The price for the improved 99/100% quality is 2s. 3d. per gallon on rails, while the Dark quality is quoted at 1s. 11d. to 2s. per gallon on rails.

SOLVENT NAPHTHA.—There are a few parcels available at 1s. 10d. per gallon on rails at makers' works.

HEAVY NAPHTHA is in good demand at 1s. 4d. to 1s. 5d. per gallon on rails for the few parcels offered.

NAPHTHALENES are slightly better in the higher grades. 76/78 quality is worth about £6 15s. per ton, and 74/76 quality about £5 15s. at maker's works.

Latest Oil Prices

LONDON.—LINSEED OIL firm and 5s. to 7s. 6d. higher. Spot, £34 5s., ex-mill; June, £33 5s.; July-Aug., £33 7s. 6d.; Sept.-Dec., £33 12s. 6d.; Jan.-April, £34 5s. RAPE OIL nominal. Crude extracted, spot, £49; technical, refined, £51. COTTON OIL quiet. Refined common edible, £46; Egyptian crude, £40; deodorised, £48. TURPENTINE inactive. American, spot, £68s. 6d.; and July-Dec., 60s. per cwt.

HULL.—LINSEED OIL.—Naked, spot to Sept.-Dec., £33 15s.; Jan.-April, £34 2s. 6d. COTTON OIL.—Naked, Bombay crude, £37; Egyptian crude, £39 10s.; edible refined, £44; deodorised, £41. PALM KERNEL OIL.—Crushed, naked, 5¼ per cent., £43 10s. GROUNDNUT OIL.—Crushed Extracted, £40; deodorised, £51. SOYA OIL.—Extracted and crushed, £38 5s.; deodorised, £41 15s. RAPE OIL.—Crude extracted, £48 10s.; refined, £50 10s. per ton, net cash terms, ex mill. CASTOR OIL and COD OIL unchanged.

Nitrogen Products

DURING the last week the export market for sulphate of ammonia has been unchanged, goods changing hands at the equivalent of £10 15s. per ton f.o.b. in single bags. On account of the decline in production owing to the coal stoppage, British producers have now only a very small share in the export trade. Continental sellers have made sales for delivery between now and the end of the year, based on these prices for early shipment, but on slightly higher prices for later shipment. British producers are selling only from hand-to-mouth as quantities become available.

Home.—Home prices for the 1926–27 season have not yet been announced. On account of the uncertainty of the tonnage available British producers are continuing to sell on the March-May basis. During the summer months the demand for consumption is very small, but some merchants and manufacturers take in stocks at the low prices ruling for consumption during the autumn and winter months. The delay in fixing prices has therefore had little effect on the trade.

Nitrate of Soda. — The nitrate market continues weak. Practically no business is being done, as prospective buyers are waiting to see if anything comes of the discussions in Chile with regard to the reduction in the export tax on nitrate. It seems likely that sooner or later the Chilean Government will give way, as the nitrate industry is the leading industry of the country and the present burden, if unrelieved, will tend to a reduction of the activity of this industry. Stocks are considerable on the Chilean coast as well as in Europe and Egypt, so there is practically no incentive for anyone to purchase. Prices remain steady at the listed figure, but are nominal rather than actual.

AN EXHIBITION of British artificial silk goods will be held at Holland Park Hall from April 4 to 9, 1927.

A NEW ULTRAMICROSCOPE has been developed by Mr. Charles Spierer, a chemical engineer, of Geneva University. The instrument is said to give magnifications of a remarkably high order.

PUBLIC BEQUESTS amounting to £30,000 left by Mr. Duncan Shaw, a former Greenock sugar refiner, include £17,000 to the United Free Church of Scotland, and £10,800 to Greenock institutions.

THE French Artificial Silk Company, La Soie Artificielle d'Aubenton, is reported to be about to erect a new plant for the production of a new type of artificial silk called "Novotextil," at Clairvaux, Oise.

THE INDUSTRIAL FATIGUE RESEARCH BOARD has issued a report on the physiological study of the ventilation and heating of certain factories. The work was begun in 1923, and the report contains the results obtained under practical conditions.

THE AMERICAN CHEMICAL SOCIETY has elected the following as honorary members: Ira Remsen, T. W. Richards, Edgar F. Smith, W. L. Miller, Ch. Moureau, Paul Sabatier, Bohuslav Brauner, G. Bruni, Ernst Cohen, F. G. Donnan, Sir James C. Irvine, J. Sakurai, and F. Swarts.

THE INDUSTRIAL FATIGUE BOARD has published a report on the experiments made for the Departmental Committee on Humidity in Cotton Weaving by Mr. S. Wyatt, Mr. J. A. Fraser, and Mr. F. G. L. Stock. This investigation completely confirms the earlier work on the relation of air movement to comfort and efficiency.

Scottish Chemical Market

The following notes on the Scottish Chemical Market are specially supplied to* THE CHEMICAL AGE *by Messrs. Charles Tennant and Co., Ltd., Glasgow, and may be accepted as representing the firm's independent and impartial opinions.

Glasgow, June 30, 1926.

WITH the coal trouble still unsettled the heavy chemical market shows very little activity, prices for products other than coal tar distillates remaining fairly steady.

Industrial Chemicals

ACID ACETIC.—98/100%, £55 to £67 per ton, according to quantity and packing, c.i.f. U.K. port; 80% pure, £39 to £41 per ton; 80% technical, £38 to £39 per ton.

ACID BORIC.—Crystal, granulated or small flakes, £37 per ton; powdered, £39 per ton, packed in bags, carriage paid U.K. stations.

ACID CARBOLIC, ICE CRYSTALS.—In moderate demand and quoted price unchanged at 4¾d. per lb., delivered or f.o.b. U.K. port.

ACID CITRIC, B.P. CRYSTALS.—In fairly good demand and price unchanged at about 1s. 3½d. per lb., less 5% ex store. Quoted 1s. 3¾d. less 5%, ex wharf, early delivery.

ACID FORMIC, 85%.—Unchanged at about £50 per ton, ex wharf, prompt delivery. On offer from the continent at £49 per ton, c.i.f. U.K. ports.

ACID HYDROCHLORIC.—In little demand. Price 6s. 6d. per carboy, ex works.

ACID NITRIC, 80°.—Usual steady demand and price unchanged at £23 5s. per ton, ex station, full truck loads.

ACID OXALIC, 98/100%.—Remains unchanged at about 3½d. per lb., ex store. Offered for early delivery from the continent at 3⅜d. per lb., ex wharf.

ACID SULPHURIC.—144°, £3 12s. 6d. per ton; 168°, £7 per ton, ex works, full truck loads. Dearsenicated quality, 20s. per ton more.

ACID TARTARIC, B.P. CRYSTALS.—In good demand and price rather higher at 11½d. per lb., less 5%, ex wharf.

ALUMINA SULPHATE, 17/18%, IRON FREE.—On offer from the continent at about £5 8s. 6d. per ton, c.i.f. U.K. ports. Spot material quoted £6 5s. per ton, ex store.

ALUM, LUMP POTASH.—Spot material on offer at £9 5s. per ton, ex store. Quoted £7 17s. 6d. per ton, c.i.f. U.K. ports. Crystal powder on offer at about £7 12s. 6d. per ton, c.i.f. U.K. ports. Spot material £8 10s. per ton, ex store.

AMMONIA ANHYDROUS.—Imported material selling at about 11¼d. to 11½d. per lb., ex wharf, containers extra and returnable.

AMMONIA CARBONATE.—Lump, £37 per ton; powdered, £39 per ton, packed in 5 cwt. casks, delivered or f.o.b. U.K. ports.

AMMONIA LIQUID, 880°.—Unchanged at about 2½d. to 3d. per lb., delivered according to quantity.

AMMONIA, MURIATE.—Grey galvanisers' crystals of British manufacture quoted £23 10s. to £25 10s. per ton, ex station. Continental on offer at about £21 10s. per ton, c.i.f. U.K. ports. Fine white crystals of continental manufacture quoted £18 5s. per ton, c.i.f. U.K. ports.

ARSENIC, WHITE POWDERED.—Spot material unchanged at about £16 5s. per ton, ex store. Offered for prompt shipment from mines at about £15 10s. per ton, ex wharf.

BARIUM CARBONATE, 98/100%.—White powdered quality quoted £6 15s. per ton, c.i.f. U.K. ports.

BARIUM CHLORIDE, 98/100%.—Spot material quoted £10 10s. per ton, ex store. On offer from the continent at about £9 7s. 6d. per ton, c.i.f. U.K. ports.

BLEACHING POWDER.—English material unchanged at £9 10s. per ton, ex station. Contracts 20s. per ton less. Continental on offer at about £7 10s. per ton, c.i.f. U.K. ports.

BARYTES.—English material unchanged at £5 5s. per ton, ex works. Continental quoted £5 per ton, c.i.f. U.K. ports.

BORAX.—Granulated, £22 10s. per ton; crystals, £23 per ton; powdered, £24 per ton, carriage paid U.K. stations.

CALCIUM CHLORIDE.—English manufacturers' price unchanged at £5 12s. 6d. to £5 17s. 6d. per ton, ex station. Continental on offer at about £3 17s. 6d. per ton, c.i.f. U.K. ports.

COPPERAS, GREEN.—Quoted £3 10s. per ton, f.o.r. works. Moderate inquiry for export and price about £4 2s. 6d. per ton, f.o.b. U.K. ports.

COPPER SULPHATE, 99/100%.—Continental material on offer at about £22 10s. per ton, ex wharf. English material for export quoted £23 5s. per ton, f.o.b. U.K. ports.

FORMALDEHYDE, 40%.—Still higher at about £38 10s. per ton, c.i.f. U.K. ports. Spot material quoted £39 15s. per ton, ex store.

GLAUBER SALTS.—English material unchanged at £4 per ton, ex store or station. Continental quoted at £3 per ton, c.i.f. U.K. ports.

LEAD, RED.—Imported material unchanged at about £37 10s. per ton, ex store.

LEAD, WHITE.—On offer at £38 10s. per ton, ex store.

LEAD ACETATE.—Rather higher quotations from the continent. Now quoted £45 per ton, c.i.f. U.K. ports.

MAGNESITE, GROUND CALCINED.—Quoted £8 10s. per ton, ex store, in moderate demand.

POTASH CAUSTIC, 88/92%.—Syndicate prices vary from £25 10s. to £28 15s. per ton, c.i.f. U.K. ports, according to quantity and destination. Spot material available at about £29 per ton, ex store.

POTASSIUM BICHROMATE.—Unchanged at 4½d. per lb., delivered.

POTASSIUM CARBONATE, 96/98%.—Quoted £25 5s. per ton, ex wharf, early delivery. Spot material on offer at £20 10s. per ton, ex store; 90/94% quality quoted £22 5s. per ton, c.i.f. U.K. ports.

POTASSIUM CHLORATE, 98/100%.—Powdered on offer at £26 15s. per ton, c.i.f. U.K. ports; crystals, £28 per ton, c.i.f. U.K. ports.

POTASSIUM NITRATE (SALTPETRE).—Unchanged at about £22 5s. per ton, c.i.f. U.K. ports; spot material available at £24 per ton, ex store.

POTASSIUM PERMANGANATE, B.P. CRYSTALS.—Quoted 7½d. per lb., ex store, spot delivery. To come forward 7d. per lb., ex wharf.

POTASSIUM PRUSSIATE, YELLOW.—Quoted 7½d. per lb., ex wharf.

SODA CAUSTIC.—76/77%, £17 10s. per ton; 70/72%, £16 2s. 6d. per ton; broken, 60%, £16 12s. 6d. per ton; powdered, 98/99%, £20 17s. 6d. per ton. All carriage paid U.K. stations, spot delivery. Contracts 20s. per ton less.

SODIUM ACETATE.—English material quoted £22 per ton, ex station. Continental on offer at about £20 10s. per ton, ex store, or to come forward, £19 15s. per ton, c.i.f. U.K. ports.

SODIUM BICARBONATE.—Refined recrystallised quality, £10 10s. per ton, ex quay or station. M.W. quality, 30s. per ton less.

SODIUM BICHROMATE.—English price unchanged at 3½d. per lb., delivered.

SODIUM CARBONATE (SODA CRYSTALS).—£5 to £5 5s. per ton, ex quay or station. Powdered or pea quality, £1 7s. 6d. per ton more (alkali 58%) £8 12s. 3d. per ton, ex quay or station.

SODIUM HYPOSULPHITE OF SODA.—Large crystals of English manufacture quoted £9 per ton, ex store. Minimum 4 ton lots. Pea crystals, £14 10s. per ton, ex station. Continental on offer at about £7 12s. 6d. per ton, c.i.f. U.K. ports.

SODIUM NITRATE.—Quoted £13 per ton, ex store; 96/98% refined quality, 7s. 6d. per ton extra.

SODIUM NITRITE, 100%.—Quoted £24 per ton, ex store. Offered from the continent at about £22 5s. per ton, c.i.f. U.K. ports.

SODIUM PRUSSIATE, YELLOW.—Offered for early delivery at 4d. per lb., ex wharf. Spot material quoted 4¼d. per lb., ex store.

SODIUM SULPHATE, SALTCAKE.—Price for home consumption, £3 10s. per ton, ex works. Good inquiry for export and higher prices obtainable.

SODIUM SULPHIDE, 60/62%.—Solid, £13 5s. per ton; broken, £14 5s. per ton; flake, £15 5s. per ton; crystals, 31/34%, £8 12s. 6d. per ton. All delivered buyers' works U.K., minimum 5-ton lots, with slight reduction for contracts. 60/62% solid quality offered from the continent at about £9 15s. per ton, c.i.f. U.K. ports. Broken, 15s. per ton more; crystals, 30/32%, £7 per ton, c.i.f. U.K. ports.

SULPHUR.—Flowers, £11 10s. per ton; roll, £10 5s. per ton; rock, £10 5s. per ton; floristella, £9 15s. per ton; ground American, £9 per ton—ex store, spot delivery; prices nominal.

ZINC CHLORIDE.—British material, 96/98%, quoted £23 15s. per ton, f.o.b., U.K. port; 98/100%, solid, on offer from the continent at about £21 15s. per ton, c.i.f. U.K. ports; powdered 20s. per ton extra.

ZINC SULPHATE.—Continental make on offer at about £11 per ton, ex wharf.

NOTE.—The above prices are for bulk business and are not to be taken as applicable to small parcels.

Coal Tar Intermediates

BENZIDINE BASE.—3s. 3d. per lb. Some home inquiries.

ALPHA NAPHTHOL.—2s. per lb. Some home inquiries.

NAPHTHIONATE OF SODA.—1s. 8d. per lb. Some home inquiries.

BETA NAPHTHOL.—11d. to 1s. per lb. Some home inquiries.

PARANITRANILINE.—1s. 9d. per lb. Some home inquiries.

Manchester Chemical Market

[From Our Own Correspondent.]

Manchester, July 1, 1926.

The home demand for chemicals on the Manchester market is much the same as it has been at any time during the past month. What comparatively little business is being transacted is for small parcels and usually for prompt or early delivery. Some export inquiry has been reported this week and a quiet trade in a few lines has been done recently with the continent, India, Canada and the United States, although it has not reached any important dimensions. As reported last week slight weakness is to be observed here and there, due, of course, to the very small demand, but most lines keep steady.

Heavy Chemicals

Bicarbonate of soda remains at £10 10s. per ton, in bags, but there is only a quiet business being done in this product. The same remark may be made of glauber salts, which continue to be quoted at about £3 15s. per ton. A fair inquiry for alkali is reported, and prices are unchanged at £6 15s. per ton. The demand for sulphide of sodium is very slow and easiness continues to characterise this section of the market; 60-65 per cent. concentrated ranges from £10 5s. to £10 10s. per ton, and commercial quality at £9. Phosphate of soda is somewhat steadier at £12 10s. to £12 15s. per ton, although inquiry for this is still limited. Caustic soda is well maintained at from £15 2s. 6d. for 60 per cent. to £17 10s. for 76 per cent. material. Saltcake is quiet but unchanged at £3 5s. per ton. Hyposulphite of soda is steady and in fair request at £9 5s. to £9 10s. per ton for commercial quality, and about £14 10s. for photographic. Bichromate of soda is firm and in fair inquiry at about 3¼d. per lb. Chlorate of soda is quoted at about the same price or possibly a little lower. Bleaching powder is quiet although still offering at £8 10s. per ton. Acetate of soda keeps very firm at about £21 per ton. Permanganate of potash meets with a limited amount of inquiry, but there is little change to report so far as values are concerned, B.P. quality commanding about 7d. per lb. and commercial 5¼d. to 5½d. Bichromate of potash continues firm at 4¼d. per lb. Offers of carbonate of potash are perhaps a little cheaper at £26 to £26 5s. per ton. Caustic potash keeps steady, although not very active at about £27 per ton. Chlorate of potash is quiet and has an easy tendency at 3¾d. per lb. Yellow prussiate of potash is still on offer at about 7d. per lb., but one does not hear of much buying being done.

Arsenic is no stronger, although, at the same time, no further ground has been lost, £13 10s. per ton, on rails, still being quoted for white powdered, Cornish makes; inquiry for this continues restricted. Copper sulphate is quiet and easy at £23 10s. per ton, f.o.b. Nitrate of lead is attracting little buying interest but values are fully held at round £41 per ton. Acetate of lead are also firm at £45 to £46 for white and £41 for brown. Acetate of lime is quiet but unchanged, grey offering at round £16 per ton and brown at £7 15s. to £8.

Acids and Tar Products

Acetic acid is rather slow, but there has not been much change in prices; commercial 80 per cent. is round £36 10s. per ton and glacial at £66 to £67. Oxalic acid shows no sign of improvement and is now offered at 3½d. to 3⅝d. per lb. Tartaric is quite firm at up to 11¾d. per lb., as is also citric, which is quoted at about 1s. 3¼d. per lb.

The market for coal-tar products is naturally influenced by the extreme scarcity of supplies, and in many instances values are purely nominal. Pitch is quoted here at up to 80s. per ton, f.o.b., although there is very little actually being bought or sold. Creosote oil is quoted at 6¾d. to 7d. and even higher, while solvent naphtha is reaching a very high level, 1s. 9d. to 1s. 10d. per gallon being quoted here.

LL.D. for Dr. Armstrong

At the annual summer graduation at St. Andrews University on Tuesday, Principal Sir James Irvine, the Vice-Chancellor, presiding, the honorary degree of Doctor of Laws (LL.D.) was conferred upon Dr. Edward Frankland Armstrong, F.R.S., Scientific Director of the British Dyestuffs Corporation.

British Concessionaires in Russia

Soviet Authorities and Lena Goldfields, Ltd.

Speaking at the fifteenth ordinary general meeting of the Central Oil, Mining and Chemicals Trust, on Friday, June 25, the chairman, Mr. Martin Coles Harman, said that Lena Goldfields, Ltd., in which the trust had an interest, was the first really big British company to take up a concession from the Soviet authorities. It entered into occupation of its former properties—as well as of other very important properties which it received by agreement with the former owners—on October 1, 1925. The name, Lena Goldfields, Ltd., did not do justice to this great industrial mining enterprise, which was potentially one of the largest businesses of its sort in the whole world. After touching on the fact that the concessions to Lena Goldfields, Ltd., included areas which could be worked for iron, copper, silver, lead, etc., Mr. Harman went on to say: "I am authorised to tell you that the treatment which Lena Goldfields has received at the hands of the Soviet authorities leaves nothing to be desired. If others who may take up a similar position towards the Soviet authorities that Lena has taken up get equal consideration and help in restarting their businesses, they will have nothing to complain of."

German Lignite Developments

The German production of lignite (brown coal) has increased very considerably, and it is now proving a serious competitor to bituminous coal in the German home market, says a *Times* correspondent. New inventions are greatly extending its uses, and many improvements have been effected in the manufacture of compressed lignite briquettes. The result is that Germany is able to release a considerable surplus of bituminous coal and to divert this into other channels. About 80 per cent. of German lignite is obtained above ground and is mined quarry fashion. It is distributed widely throughout the country, the largest deposits being in Saxony. The price of lignite briquettes has been reduced in consequence of the extraction of many by-products, with the result that they have now practically supplanted ordinary coal for household and many other purposes. Lignite is also being used with good results by electrical plants and industries generally. The lignite industry has been less severely affected by the general economic crisis than that of bituminous coal. In 1925-26 the output of lignite increased by 12·2 per cent. While the output of lignite in 1913 reached a total of 87,200,000 tons and that of coal 190,000,000 tons, the production of lignite in 1925 increased to 139,800,000 tons, and that of coal fell to 132,000,000 tons. It should, however, be mentioned that the actual output of coal in 1925 increased by 11·7 per cent. as compared with 1924. The production of briquettes increased from 21,500,000 tons in 1913 to 33,600,000 tons in 1925. The output per head in Prussia amounted to 12,020 tons in 1925, as against 10,056 tons in 1913, in spite of the fact that the lignite deposits have since that time become more difficult to work.

Railway and Canal Traffic

The annual general meeting of the Mansion House Association on Railway and Canal Traffic was held on Friday, June 18, Sir Herbert Matthews in the chair. General Long was unanimously elected president in the place of Sir Herbert Matthews, retiring after six years, and Mr. W. F. S. Vicary, ex-chairman of committees, was elected a vice-president. Mr. W. H. Gaunt and Mr. William Oldham were elected chairman of committees and hon. treasurer respectively. With reference to the general revision of railway rates and charges, reports were received of the action taken relating to the Association's general objections on behalf of its members to the schedules of standard charges. The important question raised at the Railway Rates Tribunal on June 7 as to the policy of the railway companies in increasing the existing exceptional rates before the appointed day was also under consideration, and the following resolution was adopted: "That this Association is emphatically of opinion that any further increase in railway rates would militate against the development and extension of the carriage of merchandise by railway and inevitably lead to a diminution of the said traffic." It was decided to support the policy of the National Council of Inland Waterways to encourage and develop inland water transport.

Company News

B. Laporte, Ltd.—The half-yearly dividends on the preference shares were payable on June 30.

Ropp Tin Co.—A final dividend of 5 per cent., less tax, is announced, making 65 per cent. for the year to December, 1925, and an interim dividend of 20 per cent. for 1926.

Broughton Copper Co.—The profit for the past year amounted to £63,677 and £5,257 was brought in. A final dividend of 10 per cent. is announced, making 15 per cent. for the year, less tax.

Barrenechea Nitrate Co.—The net profit for the year 1925 was £4,950, compared with a loss of £1,588 for 1924. It is proposed to distribute a dividend of 5 per cent. less tax, the same as last year.

Kynoch's, Ltd.—A net profit of £126,141 is reported for the year, as compared with £89,069 in 1925. The ordinary capital receives 23 per cent., tax free, as against 18 per cent., leaving £273,896 to be carried forward.

Reeves & Sons.—The profits for the year ended April 30 were £25,954, and £6,363 was brought forward. A final dividend of 7½ per cent. is proposed, making 10 per cent. for the twelve months, adding £500 to reserve for depreciation, and carrying forward £6,681.

Magadi Soda Co.—The first report since the reconstruction in 1924, covering the twelve months to December last, states that, after allowing £20,000 for depreciation, the profit amounted to £23,937. It is proposed to pay 5 per cent. on the debentures and defer any further distribution until a settlement has been effected with the revenue authorities.

Mond Nickel Co., Ltd.—The report for the year to April 30 last, shows a balance to credit of profit and loss of £454,073. The directors recommend the payment of a dividend for the year of 7 per cent. per annum on the cumulative, cumulative "A," and non-cumulative preference shares, less income tax, and 1s. 6d. per share on the ordinary shares, less income tax, which, together with 1s. per share paid in March, 1926, makes a total dividend of 2s. 6d. per share, for the year ended April 30.

British Dyestuffs Corporation, Ltd.—The profit for the year ended March 31 last amounted to £253,517. The directors propose to set aside the sum of £80,000 for depreciation on plant and buildings, carrying forward a balance of £78,006. For the seventeen months ended March 31, 1925, previous to the reconstruction of capital, trading results, after providing £437,832 for depreciation, showed a profit of £88,674. Deducting this sum from £449,276, the balance of loss brought forward, there remained a deficit of £360,602.

Distillers Co.—The directors recommend a final dividend on the ordinary shares of 2s. 6d. per share, less tax, payable on August 1, which with the interim dividend of 1s. 6d. per share already paid, makes 20 per cent., less tax, for the year ended May 15. A sum of £200,000 is placed to reserve, £25,000 to superannuation fund, £5,000 to fire insurance, and £100,000 to writing off a further one-third of capital expenditure incurred through the share transaction with Buchanan-Dewar and Walker shareholders, leaving £121,500 to be carried forward.

Lagunas Nitrate Co.—For the twelve months ended December 31, 1925, the gross profit, including interest on investments and bank deposit, etc., and after allowing for the liability under the fall clause, amounted to £30,363. After deducting the usual administration charges and provisions for English and Chilean income tax, there remains a balance of £18,464. A dividend of 1s. per share, free of income tax, is recommended. In accordance with the resolution passed at an extraordinary general meeting on April 29, 1926, a distribution as a special dividend of 13s. per share, free of income tax, has been made.

Artificial Silk from Rice

An important American firm are constructing a large plant in Louisiana to make cellulose from rice hulls, for use in the artificial silk, high explosives and film industries. This is the result of exhaustive experiments, and the product is said to be more suitable than cotton linters, which the firm previously used. The project suggests a large scope in rice-producing countries, where artificial silk manufacture is only beginning.

Chemical Trade Inquiries

The following inquiries, abstracted from the "Board of Trade Journal," have been received at the Department of Overseas Trade (Development and Intelligence), 35, Old Queen Street, London, S.W.1. British firms may obtain the names and addresses of the inquirers by applying to the Department (quoting the reference number and country), except where otherwise stated.

White Lead, etc.—The Director-General, India Store Department in London, invites tenders for white lead paint and white lead substitute, due on July 6. Tender forms are obtainable from Branch No. 10, Belvedere Road, Lambeth, S.E.1.

Soya Bean Oil, Etc.—Trinidad Commission Merchants having satisfactorily represented a firm of soap manufacturers for two years are desirous of obtaining agencies for soya bean oil, oilmeal, grape seed oil, etc. (Reference No. 5.)

Chemicals, Etc.—A firm of import, export and general commission agents in Sofia desires to obtain representation of British firms for boiled linseed oil, dry paints and chemicals, etc. (Reference No. 19.)

Agent's Services Offered.—A firm of commission agents in Para desires to secure the representation of British manufacturers and exporters of heavy and light chemicals and drugs. (Reference No. 38.)

Agent's Services Offered.—A firm of commission agents in Santo Domingo desires to secure the representation of British exporters of linseed oil, paints, and cement. (Reference No. 40.)

Tariff Changes

Bahamas.—The Tariff Amendment Act, 1926, reduces the Customs duty on crude petroleum oils from 1s. per gallon to 25 per cent., *ad valorem*.

South Africa.—A Bill to amend the Customs Tariff and Excise Duties Amendment Act, 1925, has been introduced into the Union Parliament. Lubricating grease and aluminium sulphate duties are included in the proposed amendments. It is also proposed that certain products of the United Kingdom not now accorded preference in the Union, including white lead, glass and plates and drills for sugar filter processes, etc., will also on the Bill's enactment receive preferential treatment.

Belgium.—A Law dated June 8 fixes a single tax of 4 per cent. for pharmaceutical specialities, prepared medicaments and medicinal preparations.

Lithuania.—With reference to the notices in The Chemical Age on June 12 and 19, respectively, regarding certificates of origin, it is now reported that the introduction of this requirement has been postponed indefinitely.

Norway.—With the exception of certain classes of footwear, the importation, manufacture, or sale of footwear in which chemically prepared fibre board is used is prohibited. The Norwegian Government has prepared a Bill for the partial revision of the Norwegian Customs Tariff, which will affect duties on glass, soap, acetic acid and vinegars, carbides, etc.

Syria and Lebanon.—A recent Decree, No. 334, modifying the import duties on imported alcohol and alcoholic products will be levied as from July 1.

New Chemical Trade Mark

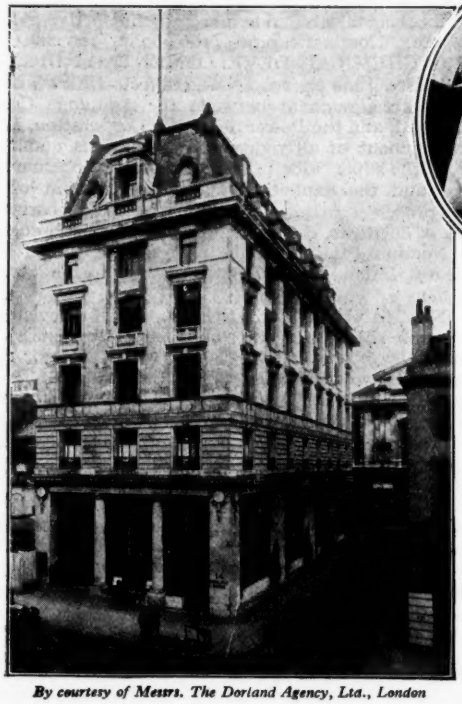
Application for Registration

This list has been specially compiled for us by Mr. H. T. P. Gee, Patent and Trade Mark Agent, Staple House, 51 and 52, Chancery Lane, London, W.C.2, from whom further information may be obtained, and to whom we have arranged to refer any inquiries relating to Patents, Trade Marks and Designs.

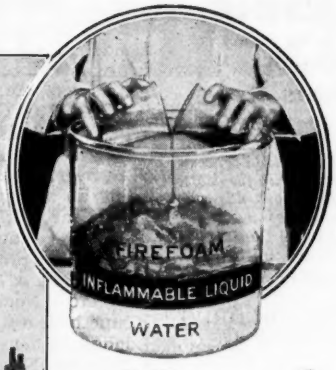
Opposition to the Registration of the following Trade Mark can be lodged up to July 30, 1926.

"Westcom."

470,027. For chemical substances used in manufactures, and anti-corrosives. Class 1. The Western Commercial Co., Ltd., 248, West George Street, Glasgow, C.2; merchants. May 25, 1926.



By courtesy of Messrs. The Dorland Agency, Ltd., London



Laboratory illustration showing how Firefoam, generated by Foamite equipment, instantly smothers fire by blanketing the burning surface and so shutting out air. Inflammable liquids float upon water but Firefoam floats upon inflammable liquids. After a fire is out, Firefoam dries and may be brushed or washed away. There is no dripping or soaking through which is experienced with water or liquid chemicals.

None but the best was good enough

The completed wing of the new Dorland Agency building is equipped with Foamite appliances

The mistaken belief that all fire extinguishing methods are the same has lost hundreds of lives and millions in property.

That is why leaders in industry now call upon specialists to ensure that *the right fire protection is installed in the right place.*

Backed by a company manufacturing every type of first-aid fire appliance, Foamite Fire Protection Engineers are able to prescribe scientific safeguards for every kind of fire hazard.

Liquid—or Gas—or Foam

Water is effective upon ordinary fires. So are soda acid extinguishers, like the "Firespray," which discharge mostly water. But liquids are generally useless on oil fires —petrol fires—paint fires.

Gas, as formed by carbon tetrachloride from an extinguisher like the "Fire-Gun," has a distinct place in fighting certain types of fires. How often, though, are such devices used upon fires which they can *not* extinguish!

The foam method of smothering fire under a blanket of tough, clinging bubbles called Firefoam, is effective upon practically every type of fire. Not only does Firefoam instantly kill ordinary fires, but it is the only dependable method of extinguishing highly inflammable liquids. Yet even this method needs expert adaption to certain special risks.

Foamite representatives are always ready to *demonstrate*, upon request, the form of protection best suited to your particular hazard.

Send for a free copy of the booklet entitled "Extinguishing Oil and Other Fires," which describes the road to freedom from uncontrolled fire.

FOAMITE FIREFOAM, LTD.
24/26 MADDOX STREET, LONDON, W.1
Representatives in all leading towns

Foamite Fire Protection

A Complete Engineering Service

Against Fire

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for any errors that may occur.

County Court Judgments

[*NOTE.—The publication of extracts from the "Registry of County Court Judgments" does not imply inability to pay on the part of the persons named. Many of the judgments may have been settled between the parties or paid. Registered judgments are not necessarily for debts. They may be for damages or otherwise, and the result of bona-fide contested actions. But the Registry makes no distinction of the cases. Judgments are not returned to the Registry if satisfied in the Court books within twenty-one days. When a debtor has made arrangements with his creditors we do not report subsequent County Court judgments against him.*]

BISSELL, Mr. S. S. J. (trading as WOODBROOK DRUG CO.), Vale Place, Merridale Street, Wolverhampton. (C.C., 3/7/26.) £10 8s. 4d. May 21.

PICKERING, Clement Wm., 235, Humberstone Road, Leicester, salt merchant. (C.C., 3/7/26.) £24 19s. 7d. May 19.

Bill of Sale

BURFORD, Ernest Enoch, jun., 16, Lynton Road, and Alscot Works, Kintore Street, Bermondsey, salt, oil, vinegar, chemical and soda merchant. (B.S., 3/7/26.) Filed June 23. £250.

Mortgages and Charges

[*NOTE.—The Companies Consolidation Act of 1908 provides that every Mortgage or Charge, as described therein, shall be registered within 21 days after its creation, otherwise it shall be void against the liquidator and any creditor. The Act also provides that every Company shall, in making its Annual Summary, specify the total amount of debts due from the Company in respect of all Mortgages or Charges. The following Mortgages and Charges have been so registered. In each case the total debt, as specified in the last available Annual Summary, is also given—marked with an *—followed by the date of the Summary, but such total may have been reduced.*]

MORRISONS (DYERS AND CLEANERS), LTD. (late YORK HOUSE LAUNDRY, LTD.), Hampton Hill. (M., 3/7/26.) Registered June 19, £200 debentures, balance of £1,000; general charge. *Nil. March 4, 1925.

SOUTH KNIGHTON DYE WORKS, LTD., Leicester. (M., 3/7/26.) Registered June 17, mortgage, to Bank; charged on properties at Leicester, with machinery, etc.

TEGGIN (WALTER), LTD., Salford, dyers and cleaners. (M., 3/7/26.) Registered June 9, £100 debentures and £500 debentures, to W. Rigby, 2, Mona Drive, Douglas (I.M.); general charge. *Nil. July 5, 1925.

Receivership

SHEPHERD (PHILIP) AND CO., LTD. (R., 3/7/26.) S. E. Smith, O.B.E., of Broad Street Place, E.C.2, C.A., was appointed receiver and manager on June 19, 1926, under powers contained in debentures dated March 3 and September 5, 1925. (Mr. Field, appointed receiver and manager on February 13, died on June 16.)

London Gazette, &c.

Bankruptcy Information

ROTH, James Bertram, trading as J. B. ROTH AND CO., 21, Cannon Street, Manchester, chemical and colour merchant. First meeting, July 7, 2.30 p.m., Official Receiver's Offices, Byrom Street, Manchester. Public examination, September 17, 10 a.m., Court House, Quay Street, Manchester.

Notices of Intended Dividends

MARSDEN, Edward, Bowling Soap Works, Sticker Lane, Bradford (trading as P. AND E. MARSDEN), soap boiler and manufacturing chemist. Last day for receiving proofs, July 9. Trustee, J. O. Morris, 12, Duke Street, Bradford, Official Receiver.

PICKLES, Robert Henry, trading as R. H. PICKLES AND CO., Prussiate Works (also known as Manganese Mills), Droylsden, Manchester, chemical manufacturer. Last day for receiving proofs, July 20. Trustee, A. Yearsley, 27, Brazennose Street, Manchester.

New Companies Registered

THE ANGLO METAL CO., LTD., 2/3, Crosby Square, London, E.C. Registered June 24, 1926. Metal merchants, manufacturers of chemicals and manures, distillers, dyemakers, gas makers, etc. Nominal capital, £100,000 in £100 shares.

ELECTRO CHEMICAL DEVELOPMENT SYNDICATE, LTD. Registered June 24, 1926. The objects are to take an assignment of an agreement between the Ammonia Casale S.A., Switzerland, and the Power Securities Corporation, Ltd., being an assignment of all rights and obligations under an agreement for the supervision of the interests of the Ammonia Casale S.A., and the exploitation and development of its patents and processes within certain territories; to carry on the business of chemists, druggists, drysalters, oil and colourmen, etc. Nominal capital, £2,500 in £1 shares. Solicitors: Kenneth Brown, Baker, Baker, Lennox House, Norfolk Street, London, W.C.1.

PEARSON'S MANUFACTURING CO., LTD. Registered June 24, 1926. Manufacturing chemists, druggists, etc. Nominal capital, £1,000 in £1 shares. A director: J. Richardson, 20, Heworth Green, York.

W. Y. T. PRODUCTS, LTD., Lever House, Victoria Embankment, London, E.C. Registered June 23, 1926. Chemists, druggists, drysalters, oil and colourmen, etc. Nominal capital, £20,000 in £1 shares. The first directors are all directors of J. C. Eno, Ltd.

YORKSHIRE TAR DISTILLERS, LTD., 17, East Parade, Leeds. Registered June 26, 1926. Tar and ammonia distillers, alkali manufacturers, soap boilers, and candle makers, etc. Nominal capital, £1,000 in 500 ordinary and 500 7½ per cent. cumulative preference shares of £1 each.

Official Analyst's Error

AT a meeting of the Huddersfield Health Insurance Committee allegations by an official analyst that a Huddersfield chemist, who is on the panel, had introduced wrong ingredients into medicine made up from a prescription were discussed. Sir William Ramsden, who presided, said investigations had been made by the Pharmaceutical Committee. The allegation was that there was an excess of a certain important ingredient in the medicine to the extent of 29·6 per cent. The chemist concerned was one of the leading and most respected chemists in Huddersfield, and when the matter was reported to him he submitted a sample of the medicine to his own analyst, whose subsequent report differed considerably from that of the Ministry of Health official analyst. He said that the medicine had been correctly dispensed. When the Committee examined the discrepancies between the two reports it appeared on the face of it that in this case the public analyst was wrong. Eventually they unanimously came to the conclusion that the local chemist had not made any mistake. Sir William added: "The Committee felt that it is rather serious that there should be a mistake of this kind in the report of the analyst called in by the authorities—particularly when it may reflect upon a respectable tradesmen. We, therefore, suggest that all the papers in the case should be sent to the Ministry of Health with a request that they should take steps to prevent such discrepancies from arising in the future." This suggestion was agreed to by the Committee.

Atmospheric Wealth

THE commercial possibilities of the atmosphere were demonstrated in an address given by Mr. A. J. Bishop, B.Sc., of Darlington Technical College, to the Darlington Rotarians, on Friday, June 25. At one time we in this country depended very largely upon South America for our supplies of nitrogen, necessary for fertilisation and the making of explosives, but now the supplies were being got out of the atmosphere. Works at Billingham, near Stockton, were turning out an enormous amount of sulphate of ammonia, and in twenty years we had made ourselves independent of South America. Proposing a vote of thanks, Mr. A. E. Ruffhead, Darlington Corporation Gas Manager, said Billingham was affecting their market for the supply of sulphate of ammonia and if the price came down the difference would have to go on to the price of gas.